

SEQUENCE LISTING

<110> Walke, D. Wade
Hu, Yi
Nepomnichy, Boris
Turner, C. Alexander Jr
Zambrowicz, Brian

<120> Novel Human Kinases and Polynucleotides Encoding the Same

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| Lys | Arg | Asn | Pro | Arg | Asp | Arg | Pro | Ser | Val | Asn | Ser | Ile | Leu | Glu | Lys |
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| Lys | Trp | Lys | Arg | Glu | Ile | Tyr | Gly | Arg | Gly | Leu | Pro | Glu | Arg | Gln | Lys |
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| Asn Ala Ile Ser Ser Lys Arg Glu Ile Leu Arg | Arg Arg Leu Asn Glu Asn | | |
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| Gly Glu Ala Glu Leu Gln Leu | Glu Leu Leu Glu Asn Thr Thr | | |
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| Ala Ile Val Asp Ser Pro Val Glu Thr Lys | Ser Pro Glu Phe Ser Glu | | |
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| Ala Ser Pro Gln Met Ser Leu Lys Leu Glu | Gly Asn Leu Glu Glu Pro | | |
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| Asp Asp Leu Glu Thr Glu Ile Leu Gln Glu | Pro Ser Gly Thr Asn Lys | | |
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| Asp Ile His Ile Glu Pro Gly Thr Asn Asp Ser | Gln His Ser Lys Cys | | |
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| Asp Val Asp Lys Ser Val Gln Pro Glu Pro | Phe Phe His Lys Val Val | | |
| 755 | 760 | 765 | |
| His Ser Glu His Leu Asn Leu Val Pro Gln Val | Gln Ser Val Gln Cys | | |
| 770 | 775 | 780 | |
| Ser Pro Glu Glu Ser Phe Ala Phe Arg Ser His | Ser His Leu Pro Pro | | |
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| Lys | Glu | Ile | Asn | Ile | Ser | Arg | Met | Ser | Ser | Lys | Glu | Arg | Glu | Glu | Ser |
| | 35 | | | | | 40 | | | | 45 | | | | | |
| Arg | Arg | Glu | Val | Ala | Val | Leu | Ala | Asn | Met | Lys | His | Pro | Asn | Ile | Val |
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| Gln | Tyr | Arg | Glu | Ser | Phe | Glu | Glu | Asn | Gly | Ser | Leu | Tyr | Ile | Val | Met |
| | 65 | | | | 70 | | | 75 | | | | 80 | | | |
| Asp | Tyr | Cys | Glu | Gly | Asp | Leu | Phe | Lys | Arg | Ile | Asn | Ala | Gln | Lys | |
| | | | | | 85 | | | 90 | | | 95 | | | | |
| Gly | Val | Leu | Phe | Gln | Glu | Asp | Gln | Ile | Leu | Asp | Trp | Phe | Val | Gln | Ile |
| | | | | | 100 | | | 105 | | | 110 | | | | |
| Cys | Leu | Ala | Leu | Lys | His | Val | His | Asp | Arg | Lys | Ile | Leu | His | Arg | Asp |
| | | | | | 115 | | | 120 | | | 125 | | | | |
| Ile | Lys | Ser | Gln | Asn | Ile | Phe | Leu | Thr | Lys | Asp | Gly | Thr | Val | Gln | Leu |
| | 130 | | | | | 135 | | | | 140 | | | | | |
| Gly | Asp | Phe | Gly | Ile | Ala | Arg | Val | Leu | Asn | Ser | Thr | Val | Glu | Leu | Ala |
| | 145 | | | | | 150 | | | | 155 | | | 160 | | |
| Arg | Thr | Cys | Ile | Gly | Thr | Pro | Tyr | Tyr | Leu | Ser | Pro | Glu | Ile | Cys | Glu |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 165 | 170 | 175 | | | | | | | | | | | | |
| Asn | Lys | Pro | Tyr | Asn | Asn | Lys | Ser | Asp | Ile | Trp | Ala | Leu | Gly | Cys | Val |
| | | | | | | | | | | | | | | | |
| | | 180 | | | | 185 | | | | | | 190 | | | |
| Leu | Tyr | Glu | Leu | Cys | Thr | Leu | Lys | His | Ala | Phe | Glu | Ala | Gly | Ser | Met |
| | | | | | | | | | | | | | | | |
| | | 195 | | | | 200 | | | | | 205 | | | | |
| Lys | Asn | Leu | Val | Leu | Lys | Ile | Ile | Ser | Gly | Ser | Phe | Pro | Pro | Val | Ser |
| | | | | | | | | | | | | | | | |
| | | 210 | | | | 215 | | | | 220 | | | | | |
| Leu | His | Tyr | Ser | Tyr | Asp | Leu | Arg | Ser | Leu | Val | Ser | Gln | Leu | Phe | Lys |
| | | | | | | | | | | | | 225 | | 240 | |
| | | | | | | 230 | | | | 235 | | | | | |
| Arg | Asn | Pro | Arg | Asp | Arg | Pro | Ser | Val | Asn | Ser | Ile | Leu | Glu | Lys | Gly |
| | | | | | | | | | | | 245 | 250 | | 255 | |
| Phe | Ile | Ala | Lys | Arg | Ile | Glu | Lys | Phe | Leu | Ser | Pro | Gln | Leu | Ile | Ala |
| | | | | | | | | | | 260 | 265 | | 270 | | |
| | | | | | | | | | | | | | | | |
| Glu | Glu | Phe | Cys | Leu | Lys | Thr | Phe | Ser | Lys | Phe | Gly | Ser | Gln | Pro | Ile |
| | | | | | | | | | | 275 | 280 | | 285 | | |
| Pro | Ala | Lys | Arg | Pro | Ala | Ser | Gly | Gln | Asn | Ser | Ile | Leu | Glu | Lys | Gly |
| | | | | | | | | | | 290 | 295 | | 300 | | |
| Ala | Gln | Lys | Ile | Thr | Lys | Pro | Ala | Ala | Lys | Tyr | Gly | Ile | Pro | Leu | Ala |
| | | | | | | | | | | 305 | 310 | | 315 | | 320 |
| Tyr | Lys | Lys | Tyr | Gly | Asp | Lys | Lys | Leu | His | Glu | Lys | Lys | Pro | Leu | Gln |
| | | | | | | | | | | 325 | 330 | | 335 | | |
| Lys | His | Lys | Gln | Ala | His | Gln | Thr | Pro | Glu | Lys | Arg | Val | Asn | Thr | Gly |
| | | | | | | | | | | 340 | 345 | | 350 | | |
| Glu | Glu | Arg | Arg | Lys | Ile | Ser | Glu | Glu | Ala | Ala | Arg | Lys | Arg | Arg | Leu |
| | | | | | | | | | | 355 | 360 | | 365 | | |
| Glu | Phe | Ile | Glu | Lys | Glu | Lys | Gln | Lys | Asp | Gln | Ile | Ile | Ser | Leu | |
| | | | | | | | | | | 370 | 375 | | 380 | | |
| Met | Lys | Ala | Glu | Gln | Met | Lys | Arg | Gln | Glu | Lys | Glu | Arg | Leu | Glu | Arg |
| | | | | | | | | | | 385 | 390 | | 395 | | 400 |
| Ile | Asn | Arg | Ala | Arg | Glu | Gln | Gly | Trp | Arg | Asn | Val | Leu | Ser | Ala | Gly |
| | | | | | | | | | | 405 | 410 | | 415 | | |
| Gly | Ser | Gly | Glu | Val | Lys | Ala | Pro | Phe | Leu | Gly | Ser | Gly | Gly | Thr | Ile |
| | | | | | | | | | | 420 | 425 | | 430 | | |
| Ala | Pro | Ser | Ser | Phe | Ser | Ser | Arg | Gly | Gln | Tyr | Glu | His | Tyr | His | Ala |
| | | | | | | | | | | 435 | 440 | | 445 | | |
| Ile | Phe | Asp | Gln | Met | Gln | Gln | Gln | Arg | Ala | Glu | Asp | Asn | Glu | Ala | Lys |
| | | | | | | | | | | 450 | 455 | | 460 | | |
| Trp | Lys | Arg | Glu | Ile | Tyr | Gly | Arg | Gly | Leu | Pro | Glu | Arg | Gln | Lys | Gly |
| | | | | | | | | | | 465 | 470 | | 475 | | 480 |
| Gln | Leu | Ala | Val | Glu | Arg | Ala | Lys | Gln | Val | Glu | Glu | Phe | Leu | Gln | Arg |
| | | | | | | | | | | 485 | 490 | | 495 | | |
| Lys | Arg | Glu | Ala | Met | Gln | Asn | Lys | Ala | Arg | Ala | Glu | Gly | His | Met | Val |
| | | | | | | | | | | 500 | 505 | | 510 | | |
| Tyr | Leu | Ala | Arg | Leu | Arg | Gln | Ile | Arg | Leu | Gln | Asn | Phe | Asn | Glu | Arg |
| | | | | | | | | | | 515 | 520 | | 525 | | |
| Gln | Gln | Ile | Lys | Ala | Lys | Leu | Arg | Gly | Glu | Lys | Lys | Glu | Ala | Asn | His |
| | | | | | | | | | | 530 | 535 | | 540 | | |
| Ser | Glu | Gly | Gln | Glu | Gly | Ser | Glu | Glu | Ala | Asp | Met | Arg | Arg | Lys | Lys |
| | | | | | | | | | | 545 | 550 | | 555 | | 560 |
| Ile | Glu | Ser | Leu | Lys | Ala | His | Ala | Asn | Ala | Arg | Ala | Ala | Val | Leu | Lys |
| | | | | | | | | | | 565 | 570 | | 575 | | |
| Glu | Gln | Leu | Glu | Arg | Lys | Arg | Lys | Glu | Ala | Tyr | Glu | Arg | Glu | Lys | Lys |
| | | | | | | | | | | 580 | 585 | | 590 | | |
| Val | Trp | Glu | Glu | His | Leu | Val | Ala | Lys | Gly | Val | Lys | Ser | Ser | Asp | Val |
| | | | | | | | | | | 595 | 600 | | 605 | | |
| Ser | Pro | Pro | Leu | Gly | Gln | His | Glu | Thr | Gly | Gly | Ser | Pro | Ser | Lys | Gln |
| | | | | | | | | | | 610 | 615 | | 620 | | |
| Gln | Met | Arg | Ser | Val | Ile | Ser | Val | Thr | Ser | Ala | Leu | Lys | Glu | Val | Gly |
| | | | | | | | | | | 625 | 630 | | 635 | | 640 |
| Val | Asp | Ser | Ser | Leu | Thr | Asp | Thr | Arg | Glu | Thr | Ser | Glu | Glu | Met | Gln |
| | | | | | | | | | | 645 | 650 | | 655 | | |
| Lys | Thr | Asn | Asn | Ala | Ile | Ser | Ser | Lys | Arg | Glu | Ile | Leu | Arg | Arg | Leu |
| | | | | | | | | | | 660 | 665 | | 670 | | |

Asn Glu Asn Leu Lys Ala Gln Glu Asp Glu Lys Gly Met Gln Asn Leu
 675 680 685
 Ser Asp Thr Phe Glu Ile Asn Val His Glu Asp Ala Lys Glu His Glu
 690 695 700
 Lys Glu Lys Ser Val Ser Ser Asp Arg Lys Lys Trp Glu Ala Gly Gly
 705 710 715 720
 Gln Leu Val Ile Pro Leu Asp Glu Leu Thr Leu Asp Thr Ser Phe Ser
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 Thr Thr Glu Arg His Thr Val Gly Glu Val Ile Lys Leu Gly Pro Asn
 740 745 750
 Gly Ser Pro Arg Arg Ala Trp Gly Lys Ser Pro Thr Asp Ser Val Leu
 755 760 765
 Lys Ile Leu Gly Glu Ala Glu Leu Gln Leu Gln Thr Glu Leu Leu Glu
 770 775 780
 Asn Thr Thr Ile Arg Ser Glu Ile Ser Pro Glu Gly Glu Lys Tyr Lys
 785 790 795 800
 Pro Leu Ile Thr Gly Glu Lys Lys Val Gln Cys Ile Ser His Glu Ile
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 Asn Pro Ser Ala Ile Val Asp Ser Pro Val Glu Thr Lys Ser Pro Glu
 820 825 830
 Phe Ser Glu Ala Ser Pro Gln Met Ser Leu Lys Leu Glu Gly Asn Leu
 835 840 845
 Glu Glu Pro Asp Asp Leu Glu Thr Glu Ile Leu Gln Glu Pro Ser Gly
 850 855 860
 Thr Asn Lys Asp Glu Ser Leu Pro Cys Thr Ile Thr Asp Val Trp Ile
 865 870 875 880
 Ser Glu Glu Lys Glu Thr Lys Glu Thr Gln Ser Ala Asp Arg Ile Thr
 885 890 895
 Ile Gln Glu Asn Glu Val Ser Glu Asp Gly Val Ser Ser Thr Val Asp
 900 905 910
 Gln Leu Ser Asp Ile His Ile Glu Pro Gly Thr Asn Asp Ser Gln His
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 Ser Lys Cys Asp Val Asp Lys Ser Val Gln Pro Glu Pro Phe Phe His
 930 935 940
 Lys Val Val His Ser Glu His Leu Asn Leu Val Pro Gln Val Gln Ser
 945 950 955 960
 Val Gln Cys Ser Pro Glu Glu Ser Phe Ala Phe Arg Ser His Ser His
 965 970 975
 Leu Pro Pro Lys Asn Lys Asn Lys Asn Ser Leu Leu Ile Gly Leu Ser
 980 985 990
 Thr Gly Leu Phe Asp Ala Asn Asn Pro Lys Met Leu Arg Thr Cys Ser
 995 1000 1005
 Leu Pro Asp Leu Ser Lys Leu Phe Arg Thr Leu Met Asp Val Pro Thr
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 1025 1030 1035 1040
 Glu Asn Ile Lys Glu Gly Pro Ser Asp Ser Glu Asp Ile Val Phe Glu
 1045 1050 1055
 Glu Thr Asp Thr Asp Leu Gln Glu Leu Gln Ala Ser Met Glu Gln Leu
 1060 1065 1070
 Leu Arg Glu Gln Pro Gly Glu Glu Tyr Ser Glu Glu Glu Ser Val
 1075 1080 1085
 Leu Lys Asn Ser Asp Val Glu Pro Thr Ala Asn Gly Thr Asp Val Ala
 1090 1095 1100
 Asp Glu Asp Asp Asn Pro Ser Ser Glu Ser Ala Leu Asn Glu Glu Trp
 1105 1110 1115 1120
 His Ser Asp Asn Ser Asp Gly Glu Ile Ala Ser Glu Cys Glu Cys Asp
 1125 1130 1135
 Ser Val Phe Asn His Leu Glu Glu Leu Arg Leu His Leu Glu Gln Glu
 1140 1145 1150
 Met Gly Phe Glu Lys Phe Phe Glu Val Tyr Glu Lys Ile Lys Ala Ile
 1155 1160 1165
 His Glu Asp Glu Asp Glu Asn Ile Glu Ile Cys Ser Lys Ile Val Gln

| | | |
|---|-----------------------------|------|
| 1170 | 1175 | 1180 |
| Asn Ile Leu Gly Asn Glu His Gln His | Leu Tyr Ala Lys Ile Leu His | |
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| Leu Val Met Ala Asp Gly Ala Tyr Gln Glu Asp Asn Asp Glu | | 1200 |
| 1205 | | 1210 |

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<212> DNA
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| tccttatgatc | tccgcagttt | ggtgtctcgag | ttatTTaaaaa | gaaatcctag | ggatagacca | 120 |
| tcagtcaact | ccatatttgg | gaaaggTTTT | atagccaaac | gcattgaaaa | gtttctctct | 180 |
| cctcagctta | ttgcagaaga | atTTTgtcta | aaaacattt | cgaagTTgg | atcacagcct | 240 |
| ataccagcta | aaagaccagc | ttagggacaa | aactcgattt | ctgttatgcc | tgctcagaaa | 300 |
| attacaAAAGC | ctggcgtcaa | atatggata | cctttagcat | ataagaaata | tggagataaa | 360 |
| aaattacacg | aaaagaaacc | actgcaaaaaa | cataaacagg | cccatcaaaac | tccagagaag | 420 |
| agagtgaata | ctggagaaga | aaggaggaaa | atATCTGAGG | aagcagcaag | aaagagaagg | 480 |
| ctggaaatTA | ttgaaaaaaa | aaagaaacaa | aaggatcaga | tttagTTTT | aatgaaggct | 540 |
| gaacaaatGA | aaaggcaaga | aaaggaaagg | ttggaaagaa | taaatagggc | caggaaacaa | 600 |
| ggatggagaa | atgtgctaag | tgctgggtga | agtggtaag | taaggctcc | tttctggc | 660 |
| agtgggggg | ctatagctcc | atcatTTTT | tcttctcgag | gacagtatga | acattaccat | 720 |
| gccatTTTG | accaaATGCA | gcaacaaAAGA | gcagaagata | atgaagctaa | atggaaaaga | 780 |
| gaaatATATG | gtcgaggTCT | tccagaaAGG | caaaaAGGGC | agctagctgt | agaaagagct | 840 |
| aaacaAGTAG | aagagtTCT | gcagcgaAAA | cgggaagcta | tgcagaataa | agctcgagcc | 900 |
| gaaggacata | ttgttatct | ggcaagactg | aggcaataa | gactacagaa | tttcaatgag | 960 |
| cgccaacaga | ttaaAGCaa | acttcgtgg | aaaaagaaaag | aagctaatac | ttctgaagga | 1020 |
| caagaaggaa | gtgaagaggc | tgacatgagg | cgcaaaaaaa | tgcataatcact | gaaggcccatt | 1080 |
| gcaaATGcAC | gtgctgtgt | actaaaagaa | caactagaac | gaaagagaaa | ggaggcttat | 1140 |
| gagagagaaa | aaaaagtGTG | ggaagagcat | ttggtgctca | aaggagttaa | gagttctgtat | 1200 |
| gtttctccac | ctttggaca | gcatgaaaca | ggtggctc | catcaaagca | acagatgaga | 1260 |
| tctgttattt | ctgttaacttc | agctttgaaa | gaagttggcg | tggacagtag | ttaactgtat | 1320 |
| accggggaaa | cttcagaaga | gatcAAAGAG | accaacaatg | ctatttcaag | taagcgagaa | 1380 |
| atactTCGCA | gattaaATGA | aaatCTTaaa | gctcaagaag | atgaaaaagg | aatgcagaat | 1440 |
| ctctctgtata | cttttgagat | aaatgttcat | gaagatgcca | aagagcatga | aaaagaaaaaa | 1500 |
| tcagTTTcat | ctgatcgaa | gaagtgggg | gcaggaggc | aacttgtat | ttctctggat | 1560 |
| gagTTAACAC | tagatacata | cttctctaca | actgaaAGAC | atacagtggg | agaagttatt | 1620 |
| aaATTAGGTc | ctaATGGATC | tccaaGAAGA | gcctgggg | aaagtccgac | agatTCgtt | 1680 |
| ctaaAGATAc | ttggagaAGC | tgaatacAA | cttcagacag | aactattaga | aaatacact | 1740 |
| attAGAAGTg | agatTTTCC | cgaaggggaa | aagtacAAAC | cTTAAATTAC | tggagaaaaaa | 1800 |
| aaAGTACAAAT | gtatTTcaca | tgaataAAAC | ccatcagcta | ttgttgattc | tcctgttag | 1860 |
| acaAAAAGTC | ccgagttcag | tgaggcatct | ccacagatgt | cattgaaact | ggaaggaaat | 1920 |
| ttAGAAGAAC | ctgatgattt | ggaaACAGAA | attctacaa | agCCAAGTGG | aacAAACAAA | 1980 |
| gatgagAGCT | tgccatgcac | tattactgat | gtgtggatta | gtgaggaaaa | agaaacAAAG | 2040 |
| gaaACTCAGT | cggcagatAG | gatcaccatt | caggAAAATG | aagtTTCTGA | agatggagTC | 2100 |
| tcgagtACTG | tggaccaACT | tagtgcatt | catatagAGC | ctggAACCAA | tgattTCAG | 2160 |
| cactCTAAAT | gtgatgtAGA | taagtCTGTG | caaccGAAC | cattttCCA | taaggTGGTT | 2220 |
| cattCTGAAC | acttGAACt | agtCCCTCAA | gttcaatcag | ttcagtgttc | accagaagaa | 2280 |
| tcctTTGcat | ttcgatCTCA | ctcgcatTTA | ccacaaaaaa | ataaaaACAA | gaattCCTG | 2340 |
| ctgattggac | tttcaactgg | tctgtttgt | gcaaACAAcc | caaAGATGTT | aaggacatgt | 2400 |
| tcactTCAG | atctCTCAAA | gctgttcAGA | accCTTATGG | atgttcccac | cgtaggagat | 2460 |
| gttCGTCAAG | acaatCTGA | aatAGATGAA | attaaAGATG | aaaacattaa | agaaggacct | 2520 |
| tctgattCTG | aagACATGT | gtttGAAGAA | actgacacAG | atttacaAGA | gctgcaggcc | 2580 |
| tcgatggac | agttACTTAG | ggaACAAACCT | ggtGAAGAAT | acagtGAAGA | agaAGAGTC | 2640 |
| gtttGAAGA | acagtGATGT | ggAGCACAACt | gcaaATGGGA | cAGATGTGGC | agatGAAGAT | 2700 |
| gacaATCCC | gtAGTGAAG | tgcCTGAAC | gaAGAATGGC | actcAGATAA | cAGTGTGTT | 2760 |
| gaaATTGCTA | gtGAATGTGA | atGCAGATGT | gtctttaACC | atttagAGGA | actgAGACTT | 2820 |
| catCTGGAGC | aggAAATGGG | CTTGAaaaaa | ttctttGAGG | tttatGAGAA | aataAAGGCT | 2880 |
| attCATGAAG | atGAAGATGA | aaatATTGAA | atttGTTCAA | aaatAGTTCA | aaatATTTTG | 2940 |
| gaaaATGAAC | atCAGCATCT | ttatGCCAAG | atttttcatt | tagtcatGGC | agatggagcc | 3000 |
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<211> 1007
<212> PRT
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35 40 45
Gly Phe Ile Ala Lys Arg Ile Glu Lys Phe Leu Ser Pro Gln Leu Ile
50 55 60
Ala Glu Glu Phe Cys Leu Lys Thr Phe Ser Lys Phe Gly Ser Gln Pro
65 70 75 80
Ile Pro Ala Lys Arg Pro Ala Ser Gly Gln Asn Ser Ile Ser Val Met
85 90 95
Pro Ala Gln Lys Ile Thr Lys Pro Ala Ala Lys Tyr Gly Ile Pro Leu
100 105 110
Ala Tyr Lys Tyr Gly Asp Lys Lys Leu His Glu Lys Lys Pro Leu
115 120 125
Gln Lys His Lys Gln Ala His Gln Thr Pro Glu Lys Arg Val Asn Thr
130 135 140
Gly Glu Glu Arg Arg Lys Ile Ser Glu Glu Ala Ala Arg Lys Arg Arg
145 150 155 160
Leu Glu Phe Ile Glu Lys Glu Lys Gln Lys Asp Gln Ile Ile Ser
165 170 175
Leu Met Lys Ala Glu Gln Met Lys Arg Gln Glu Lys Glu Arg Leu Glu
180 185 190
Arg Ile Asn Arg Ala Arg Glu Gln Gly Trp Arg Asn Val Leu Ser Ala
195 200 205
Gly Gly Ser Gly Glu Val Lys Ala Pro Phe Leu Gly Ser Gly Gly Thr
210 215 220
Ile Ala Pro Ser Ser Phe Ser Ser Arg Gly Gln Tyr Glu His Tyr His
225 230 235 240
Ala Ile Phe Asp Gln Met Gln Gln Gln Arg Ala Glu Asp Asn Glu Ala
245 250 255
Lys Trp Lys Arg Glu Ile Tyr Gly Arg Gly Leu Pro Glu Arg Gln Lys
260 265 270
Gly Gln Leu Ala Val Glu Arg Ala Lys Gln Val Glu Glu Phe Leu Gln
275 280 285
Arg Lys Arg Glu Ala Met Gln Asn Lys Ala Arg Ala Glu Gly His Met
290 295 300
Val Tyr Leu Ala Arg Leu Arg Gln Ile Arg Leu Gln Asn Phe Asn Glu
305 310 315 320
Arg Gln Gln Ile Lys Ala Lys Leu Arg Gly Glu Lys Lys Glu Ala Asn
325 330 335
His Ser Glu Gly Gln Glu Gly Ser Glu Glu Ala Asp Met Arg Arg Lys
340 345 350
Lys Ile Glu Ser Leu Lys Ala His Ala Asn Ala Arg Ala Ala Val Leu
355 360 365
Lys Glu Gln Leu Glu Arg Lys Arg Lys Glu Ala Tyr Glu Arg Glu Lys
370 375 380
Lys Val Trp Glu Glu His Leu Val Ala Lys Gly Val Lys Ser Ser Asp
385 390 395 400
Val Ser Pro Pro Leu Gly Gln His Glu Thr Gly Gly Ser Pro Ser Lys
405 410 415
Gln Gln Met Arg Ser Val Ile Ser Val Thr Ser Ala Leu Lys Glu Val
420 425 430
Gly Val Asp Ser Ser Leu Thr Asp Thr Arg Glu Thr Ser Glu Glu Met
435 440 445
Gln Lys Thr Asn Asn Ala Ile Ser Ser Lys Arg Glu Ile Leu Arg Arg

| | | |
|---|-----|-----|
| 450 | 455 | 460 |
| Leu Asn Glu Asn Leu Lys Ala Gln Glu Asp Glu Lys Gly Met Gln Asn | | |
| 465 | 470 | 475 |
| Leu Ser Asp Thr Phe Glu Ile Asn Val His Glu Asp Ala Lys Glu His | | 480 |
| 485 | 490 | 495 |
| Glu Lys Glu Lys Ser Val Ser Ser Asp Arg Lys Lys Trp Glu Ala Gly | | |
| 500 | 505 | 510 |
| Gly Gln Leu Val Ile Pro Leu Asp Glu Leu Thr Leu Asp Thr Ser Phe | | |
| 515 | 520 | 525 |
| Ser Thr Thr Glu Arg His Thr Val Gly Glu Val Ile Lys Leu Gly Pro | | |
| 530 | 535 | 540 |
| Asn Gly Ser Pro Arg Arg Ala Trp Gly Lys Ser Pro Thr Asp Ser Val | | |
| 545 | 550 | 555 |
| Leu Lys Ile Leu Gly Glu Ala Glu Leu Gln Leu Gln Thr Glu Leu Leu | | |
| 565 | 570 | 575 |
| Glu Asn Thr Thr Ile Arg Ser Glu Ile Ser Pro Glu Gly Glu Lys Tyr | | |
| 580 | 585 | 590 |
| Lys Pro Leu Ile Thr Gly Glu Lys Lys Val Gln Cys Ile Ser His Glu | | |
| 595 | 600 | 605 |
| Ile Asn Pro Ser Ala Ile Val Asp Ser Pro Val Glu Thr Lys Ser Pro | | |
| 610 | 615 | 620 |
| Glu Phe Ser Glu Ala Ser Pro Gln Met Ser Leu Lys Leu Glu Gly Asn | | |
| 625 | 630 | 635 |
| Leu Glu Glu Pro Asp Asp Leu Glu Thr Glu Ile Leu Gln Glu Pro Ser | | |
| 645 | 650 | 655 |
| Gly Thr Asn Lys Asp Glu Ser Leu Pro Cys Thr Ile Thr Asp Val Trp | | |
| 660 | 665 | 670 |
| Ile Ser Glu Glu Lys Glu Thr Lys Glu Thr Gln Ser Ala Asp Arg Ile | | |
| 675 | 680 | 685 |
| Thr Ile Gln Glu Asn Glu Val Ser Glu Asp Gly Val Ser Ser Thr Val | | |
| 690 | 695 | 700 |
| Asp Gln Leu Ser Asp Ile His Ile Glu Pro Gly Thr Asn Asp Ser Gln | | |
| 705 | 710 | 715 |
| His Ser Lys Cys Asp Val Asp Lys Ser Val Gln Pro Glu Pro Phe Phe | | |
| 725 | 730 | 735 |
| His Lys Val Val His Ser Glu His Leu Asn Leu Val Pro Gln Val Gln | | |
| 740 | 745 | 750 |
| Ser Val Gln Cys Ser Pro Glu Glu Ser Phe Ala Phe Arg Ser His Ser | | |
| 755 | 760 | 765 |
| His Leu Pro Pro Lys Asn Lys Asn Ser Leu Leu Ile Gly Leu | | |
| 770 | 775 | 780 |
| Ser Thr Gly Leu Phe Asp Ala Asn Asn Pro Lys Met Leu Arg Thr Cys | | |
| 785 | 790 | 795 |
| Ser Leu Pro Asp Leu Ser Lys Leu Phe Arg Thr Leu Met Asp Val Pro | | |
| 805 | 810 | 815 |
| Thr Val Gly Asp Val Arg Gln Asp Asn Leu Glu Ile Asp Glu Ile Lys | | |
| 820 | 825 | 830 |
| Asp Glu Asn Ile Lys Glu Gly Pro Ser Asp Ser Glu Asp Ile Val Phe | | |
| 835 | 840 | 845 |
| Glu Glu Thr Asp Thr Asp Leu Gln Glu Leu Gln Ala Ser Met Glu Gln | | |
| 850 | 855 | 860 |
| Leu Leu Arg Glu Gln Pro Gly Glu Glu Tyr Ser Glu Glu Glu Ser | | |
| 865 | 870 | 875 |
| Val Leu Lys Asn Ser Asp Val Glu Pro Thr Ala Asn Gly Thr Asp Val | | |
| 885 | 890 | 895 |
| Ala Asp Glu Asp Asp Asn Pro Ser Ser Glu Ser Ala Leu Asn Glu Glu | | |
| 900 | 905 | 910 |
| Trp His Ser Asp Asn Ser Asp Gly Glu Ile Ala Ser Glu Cys Glu Cys | | |
| 915 | 920 | 925 |
| Asp Ser Val Phe Asn His Leu Glu Glu Leu Arg Leu His Leu Glu Gln | | |
| 930 | 935 | 940 |
| Glu Met Gly Phe Glu Lys Phe Phe Glu Val Tyr Glu Lys Ile Lys Ala | | |
| 945 | 950 | 955 |
| | | 960 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|------|
| Ile | His | Glu | Asp | Glu | Asp | Glu | Asn | Ile | Glu | Ile | Cys | Ser | Lys | Ile | Val |
| 965 | | | | | | | | | 970 | | | | | | 975 |
| Gln | Asn | Ile | Leu | Gly | Asn | Glu | His | Gln | His | Leu | Tyr | Ala | Lys | Ile | Leu |
| 980 | | | | | | | | | 985 | | | | | | 990 |
| His | Leu | Val | Met | Ala | Asp | Gly | Ala | Tyr | Gln | Glu | Asp | Asn | Asp | Glu | |
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<212> DNA
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<400> 7

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| ctgcccagcc | agctgcagcc | acatgtggat | agccaggaaag | acctgacctt | cctctggat | 120 |
| atgtttggtg | aaaaaaagct | gcattcattt | gtaaagattc | atgaaaaact | acactactat | 180 |
| gagaagcaga | gtccgggcc | cattctccat | ggtgcggccgg | ccttggccga | tgatctggcc | 240 |
| gaagagctt | agaacaagcc | attaaacagt | gagatcagag | agctgttga | actactgtca | 300 |
| aaaccataat | tgaaggcttt | gctctctgtt | catgatactg | tggctcagaaa | gaattacgac | 360 |
| ccagtgttgc | ctcctatgcc | tgaagatatt | gacgatgagg | aagactcagt | aaaaataatc | 420 |
| cgtctggtca | aaaatagaga | accactggga | gctaccat | agaaggatga | acagaccggg | 480 |
| gcgcatttgc | tggccagaat | catgagagag | ggagctgcag | atagaagtgg | tcttattcat | 540 |
| gttgggtat | aacttaggaa | agtcacacggg | ataccagtgg | aggataaaaag | gcctgaggaa | 600 |
| ataatacaga | ttttggctca | gtctcaggaa | gcaattacat | ttaagattat | acccggcagc | 660 |
| aaagaggaga | caccatcaa | agaaggcaag | atgtttatca | aagccctctt | tgactataat | 720 |
| cctaatttgggg | ataaggcaat | tccatgttca | gaagctgggc | tttcttcaa | aaagggagat | 780 |
| attcttcaga | ttatgagcca | agatgtatgc | acttggtggc | aagcgaaaca | cgaagctgtat | 840 |
| gcccaacccca | gggcaggcctt | gatccccctca | aagcatttcc | aggaaaggtg | a | 891 |

<210> 8
<211> 296
<212> PRT
<213> homo sapiens

<400> 8

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Pro | Ala | Leu | Ser | Thr | Gly | Ser | Asp | Thr | Gly | Leu | Tyr | Glu | | |
| 1 | | | | | | | | 10 | | | | | 15 | | |
| Leu | Leu | Ala | Ala | Leu | Pro | Ala | Gln | Leu | Gln | Pro | His | Val | Asp | Ser | Gln |
| | | | | | | | | 20 | | | | 25 | | 30 | |
| Glu | Asp | Leu | Thr | Phe | Leu | Trp | Asp | Met | Phe | Gly | Glu | Lys | Ser | Leu | His |
| | | | | | | | | 35 | | | | 40 | | 45 | |
| Ser | Leu | Val | Lys | Ile | His | Glu | Lys | Leu | His | Tyr | Tyr | Glu | Lys | Gln | Ser |
| | | | | | | | | 50 | | | | 55 | | 60 | |
| Pro | Val | Pro | Ile | Leu | His | Gly | Ala | Ala | Ala | Leu | Ala | Asp | Asp | Leu | Ala |
| | | | | | | | | 65 | | | | 70 | | 75 | 80 |
| Glu | Glu | Leu | Gln | Asn | Lys | Pro | Leu | Asn | Ser | Glu | Ile | Arg | Glu | Leu | Leu |
| | | | | | | | | 85 | | | | 90 | | 95 | |
| Lys | Leu | Leu | Ser | Lys | Pro | Asn | Val | Lys | Ala | Leu | Leu | Ser | Val | His | Asp |
| | | | | | | | | 100 | | | | 105 | | 110 | |
| Thr | Val | Ala | Gln | Lys | Asn | Tyr | Asp | Pro | Val | Leu | Pro | Pro | Met | Pro | Glu |
| | | | | | | | | 115 | | | | 120 | | 125 | |
| Asp | Ile | Asp | Asp | Glu | Glu | Asp | Ser | Val | Lys | Ile | Ile | Arg | Leu | Val | Lys |
| | | | | | | | | 130 | | | | 135 | | 140 | |
| Asn | Arg | Glu | Pro | Leu | Gly | Ala | Thr | Ile | Lys | Lys | Asp | Glu | Gln | Thr | Gly |
| | | | | | | | | 145 | | | | 150 | | 155 | 160 |
| Ala | Ile | Ile | Val | Ala | Arg | Ile | Met | Arg | Gly | Gly | Ala | Ala | Asp | Arg | Ser |
| | | | | | | | | 165 | | | | 170 | | 175 | |
| Gly | Leu | Ile | His | Val | Gly | Asp | Glu | Leu | Arg | Glu | Val | Asn | Gly | Ile | Pro |
| | | | | | | | | 180 | | | | 185 | | 190 | |
| Val | Glu | Asp | Lys | Arg | Pro | Glu | Glu | Ile | Ile | Gln | Ile | Leu | Ala | Gln | Ser |
| | | | | | | | | 195 | | | | 200 | | 205 | |
| Gln | Gly | Ala | Ile | Thr | Phe | Lys | Ile | Ile | Pro | Gly | Ser | Lys | Glu | Glu | Thr |

| | | |
|---|-----|-----|
| 210 | 215 | 220 |
| Pro Ser Lys Glu Gly Lys Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn | | |
| 225 | 230 | 235 |
| 240 | | |
| Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe | | |
| 245 | 250 | 255 |
| Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp | | |
| 260 | 265 | 270 |
| 275 | 280 | 285 |
| Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile | | |
| 290 | 295 | |
| Pro Ser Lys His Phe Gln Glu Arg | | |
| <210> 9 | | |
| <211> 219 | | |
| <212> DNA | | |
| <213> homo sapiens | | |
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| aaggcaattc catgtaaagga agctgggctt tctttcaaaa agggagatat tcttcagatt | | 120 |
| atgagccaag atgatgcaac ttggtgccaa gcgaaaacacg aagctgatgc caacccccagg | | 180 |
| gcaggcattga tcccctcaaa gcatttccag gaaagggtga | | 219 |
| <210> 10 | | |
| <211> 72 | | |
| <212> PRT | | |
| <213> homo sapiens | | |
| <400> 10 | | |
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| 1 | 5 | 10 |
| 15 | | |
| Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe | | |
| 20 | 25 | 30 |
| Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp | | |
| 35 | 40 | 45 |
| Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile | | |
| 50 | 55 | 60 |
| Pro Ser Lys His Phe Gln Glu Arg | | |
| 65 | 70 | |
| <210> 11 | | |
| <211> 957 | | |
| <212> DNA | | |
| <213> homo sapiens | | |
| <400> 11 | | |
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| ctgccagccc agctgcagcc acatgtggat agccaggaag acctgacctt cctctggat | | 120 |
| atgtttggtg aaaaaagcct gcattcattt gtaaagattc atgaaaaact acactactat | | 180 |
| gagaagcaga gtccggtgcc cattctccat ggtgcggcgg ccttggccga tgatctggcc | | 240 |
| gaagagcttc agaacaagcc attaaacagt gagatcagag agctgttcaa actactgtca | | 300 |
| aaacccaaat tgaaggcttt gctctctgtt catgatactg tggctcgaaa gaattacgac | | 360 |
| ccagtggtgc ctccatgtcc tgaagatatt gacgatgggg aagactcgat aaaaataatc | | 420 |
| cgtctggtca aaaatagaga accactggga gctaccatta agaaggatga agagaccggg | | 480 |
| gcatcattt tggccagaat catgagggg ggagctgcag atagaagtgg tcttattcat | | 540 |
| gttggtgatg aacttaggga agtcaacggg ataccagtgg aggataaaag gcctgaggaa | | 600 |
| ataatacaga tttggctca gtctcaggaa gcaattacat ttaagattat accccggcagc | | 660 |
| aaagaggaga caccatcaa agaaggcaag atgtttatca aagcccttct tgactataat | | 720 |
| cctaatttggg ataaggcaat tccatgttaag gaagctggc tttcttcaa aaaggagat | | 780 |
| attcttcaga ttatgagcca agatgtatgc acttggggc aagcgttca cgaagctgtat | | 840 |
| gccaacccca gggcaggcgtt gatccctca aagcatttcc agggaaaggag attggcttg | | 900 |
| agacgaccag aaatatttgtt tcagccccctg aaagtttcca acagggaaatc atcctaa | | 957 |

<210> 12
<211> 318
<212> PRT
<213> homo sapiens

<400> 12
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Leu Leu Ala Ala Leu Pro Ala Gln Leu Gln Pro His Val Asp Ser Gln
20 25 30
Glu Asp Leu Thr Phe Leu Trp Asp Met Phe Gly Glu Lys Ser Leu His
35 40 45
Ser Leu Val Lys Ile His Glu Lys Leu His Tyr Tyr Glu Lys Gln Ser
50 55 60
Pro Val Pro Ile Leu His Gly Ala Ala Ala Leu Ala Asp Asp Leu Ala
65 70 75 80
Glu Glu Leu Gln Asn Lys Pro Leu Asn Ser Glu Ile Arg Glu Leu Leu
85 90 95
Lys Leu Leu Ser Lys Pro Asn Val Lys Ala Leu Leu Ser Val His Asp
100 105 110
Thr Val Ala Gln Lys Asn Tyr Asp Pro Val Leu Pro Pro Met Pro Glu
115 120 125
Asp Ile Asp Asp Glu Glu Asp Ser Val Lys Ile Ile Arg Leu Val Lys
130 135 140
Asn Arg Glu Pro Leu Gly Ala Thr Ile Lys Lys Asp Glu Gln Thr Gly
145 150 155 160
Ala Ile Ile Val Ala Arg Ile Met Arg Gly Gly Ala Ala Asp Arg Ser
165 170 175
Gly Leu Ile His Val Gly Asp Glu Leu Arg Glu Val Asn Gly Ile Pro
180 185 190
Val Glu Asp Lys Arg Pro Glu Glu Ile Ile Gln Ile Leu Ala Gln Ser
195 200 205
Gln Gly Ala Ile Thr Phe Lys Ile Ile Pro Gly Ser Lys Glu Glu Thr
210 215 220
Pro Ser Lys Glu Gly Lys Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn
225 230 235 240
Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe
245 250 255
Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp
260 265 270
Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile
275 280 285
Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu
290 295 300
Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser
305 310 315

<210> 13
<211> 285
<212> DNA
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<400> 13
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atgagccaag atgatgcaac ttgttgttgc aaaccccccagg 180
gcaggcttga tccccctcaaa gcatttccag gaaaggagat tggctttgag acgaccagaa 240
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<210> 14
<211> 94
<212> PRT
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<400> 14
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Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe
20 25 30
Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp
35 40 45
Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile
50 55 60
Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu
65 70 75 80
Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser
85 90

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<211> 327
<212> DNA
<213> homo sapiens

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gcaagaagaa gccaggagag tgatgggttt gaatacattt tcatttccaa gcatttggtt 180
gagacagatg tacaaaataa caagtttatt gaatatggag aatataaaaa caactactac 240
ggcacaagta tagactcagt tcggctgtc cttgctaaaa acaaagttt tttgttggat 300
gttcagcctc atgtaaatca acaatga 327

<210> 16
<211> 108
<212> PRT
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<400> 16
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Asn Glu Leu Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly
20 25 30
Val Thr Val Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp
35 40 45
Gly Val Glu Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val
50 55 60
Gln Asn Asn Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr
65 70 75 80
Gly Thr Ser Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val
85 90 95
Cys Leu Leu Asp Val Gln Pro His Val Ser Lys Gln
100 105

<210> 17
<211> 1128
<212> DNA
<213> homo sapiens

<400> 17
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atgtttggtg aaaaaaggct gcatttcattt gttaaaggattt atggaaaaactt acactactat 180
gagaagcaga gtccggtgcc catttcattt ggtgcggccg ccttggccga tgatctggcc 240
gaagagctt agaacaagcc attaaacagt gagatcagag agctgttcaa actactgtca 300
aaacccaatg tgaaggcttt gctctctgtt catgataactt tggctcagaa gaattacgac 360
ccagtgttgc ctcctatgcc tgaagatatt gacgatgagg aagactcagt aaaaataatc 420
cgtctggtca aaaatagaga accactggga gctaccatta agaaggatga acagaccggg 480
gcgatcattt tggccagaat catgagagga ggagctgcag atagaagtgg tcttattcat 540

| | | | | | | |
|-------------|------------|-------------|------------|-------------|-------------|------|
| gttggtgatg | aacttaggga | agtcaacggg | ataccagtgg | aggataaaaag | gcctgaggaa | 600 |
| ataatacaga | ttttggctca | gtctcaggga | gcaattacat | ttaagattat | acccggcagc | 660 |
| aaagaggaga | caccatcaa | agaaggcaag | atgtttatca | aagccctt | tgactataat | 720 |
| cctaattgagg | ataaggcaat | tccatgtaa | gaagctggc | tttcttcaa | aaaggagat | 780 |
| atttttcaga | ttatgagcca | agatgatgca | acttggtggc | aagcgaaaaca | cgaagctgat | 840 |
| gccaaacccc | gggcaggc | tttgcaggctt | gatcccctca | aagcattcc | aggaaaaggag | 900 |
| agacgaccag | aaatatttgt | tcagcccc | aaagtttcca | acagggaaatc | atctggttt | 960 |
| agaagaagtt | ttcgtcttag | tagaaaagat | aagaaaacaa | ataaatccat | gtatgaatgc | 1020 |
| aagaagagt | atcgtacga | cacagctgac | gtacccacat | acgaagaagt | gacaccgtat | 1080 |
| cggcgacaaa | ctaatgaaaa | atacagactc | gttgtcttgg | ttgcttga | | 1128 |

<210> 18

<211> 375

<212> PRT

<213> homo sapiens

<400> 18

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Pro | Ala | Leu | Ser | Thr | Gly | Ser | Asp | Thr | Gly | Leu | Tyr | Glu | | |
| 1 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | 15 | | |
| Leu | Leu | Ala | Ala | Leu | Pro | Ala | Gln | Leu | Gln | Pro | His | Val | Asp | Ser | Gln |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 30 |
| Glu | Asp | Leu | Thr | Phe | Leu | Trp | Asp | Met | Phe | Gly | Glu | Lys | Ser | Leu | His |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 45 |
| Ser | Leu | Val | Lys | Ile | His | Glu | Lys | Leu | His | Tyr | Tyr | Glu | Lys | Gln | Ser |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 60 |
| Pro | Val | Pro | Ile | Leu | His | Gly | Ala | Ala | Ala | Leu | Ala | Asp | Asp | Leu | Ala |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 80 |
| Glu | Glu | Leu | Gln | Asn | Lys | Pro | Leu | Asn | Ser | Glu | Ile | Arg | Glu | Leu | Leu |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 95 |
| Lys | Leu | Leu | Ser | Lys | Pro | Asn | Val | Lys | Ala | Leu | Leu | Ser | Val | His | Asp |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 110 |
| Thr | Val | Ala | Gln | Lys | Asn | Tyr | Asp | Pro | Val | Leu | Pro | Pro | Met | Pro | Glu |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 125 |
| Asp | Ile | Asp | Asp | Glu | Glu | Asp | Ser | Val | Lys | Ile | Ile | Arg | Leu | Val | Lys |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 140 |
| Asn | Arg | Glu | Pro | Leu | Gly | Ala | Thr | Ile | Lys | Lys | Asp | Glu | Gln | Thr | Gly |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 160 |
| Ala | Ile | Ile | Val | Ala | Arg | Ile | Met | Arg | Gly | Gly | Ala | Ala | Asp | Arg | Ser |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 175 |
| Gly | Leu | Ile | His | Val | Gly | Asp | Glu | Leu | Arg | Glu | Val | Asn | Gly | Ile | Pro |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 190 |
| Val | Glu | Asp | Lys | Arg | Pro | Glu | Glu | Ile | Ile | Gln | Ile | Leu | Ala | Gln | Ser |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 205 |
| Gln | Gly | Ala | Ile | Thr | Phe | Lys | Ile | Ile | Pro | Gly | Ser | Lys | Glu | Glu | Thr |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 220 |
| Pro | Ser | Lys | Glu | Gly | Lys | Met | Phe | Ile | Lys | Ala | Leu | Phe | Asp | Tyr | Asn |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 240 |
| Pro | Asn | Glu | Asp | Lys | Ala | Ile | Pro | Cys | Lys | Glu | Ala | Gly | Leu | Ser | Phe |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 255 |
| Lys | Lys | Gly | Asp | Ile | Leu | Gln | Ile | Met | Ser | Gln | Asp | Asp | Ala | Thr | Trp |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 270 |
| Trp | Gln | Ala | Lys | His | Glu | Ala | Asp | Ala | Asn | Pro | Arg | Ala | Gly | Leu | Ile |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 285 |
| Pro | Ser | Lys | His | Phe | Gln | Glu | Arg | Arg | Leu | Ala | Leu | Arg | Arg | Pro | Glu |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 300 |
| Ile | Leu | Val | Gln | Pro | Leu | Lys | Val | Ser | Asn | Arg | Lys | Ser | Ser | Gly | Phe |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 320 |
| Arg | Arg | Ser | Phe | Arg | Leu | Ser | Arg | Lys | Asp | Lys | Lys | Thr | Asn | Lys | Ser |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 335 |
| Met | Tyr | Glu | Cys | Lys | Lys | Ser | Asp | Gln | Tyr | Asp | Thr | Ala | Asp | Val | Pro |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 350 |
| Thr | Tyr | Glu | Glu | Val | Thr | Pro | Tyr | Arg | Arg | Gln | Thr | Asn | Glu | Lys | Tyr |
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Arg Leu Val Val Leu Val Ala
370 375

<210> 19

<211> 414

<212> DNA

<213> homo sapiens

<400> 19

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gtgggagtag ggctgaatga actgaaacga aagctgctga tcagtgcac ccagcactat 180
ggcgtgacag tgccccatac caccagagca agaagaagcc aggagagtga tggtgtgaa 240
tacattttca tttccaagca ttttggtag acagatgtac aaaataacaa gtttattgaa 300
tatggagaat ataaaaaaca ctactacggc acaagtatag actcagttcg gtctgtcctt 360
gctaaaaaca aagtttggttt gttggatgtt cagcctcatg taagtaaaca atga 414

<210> 20

<211> 137

<212> PRT

<213> homo sapiens

<400> 20

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20 25 30
Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu
35 40 45
Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val
50 55 60
Pro His Thr Thr Arg Ala Arg Ser Gln Glu Ser Asp Gly Val Glu
65 70 75 80
Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn
85 90 95
Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser
100 105 110
Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu
115 120 125
Asp Val Gln Pro His Val Ser Lys Gln
130 135

<210> 21

<211> 1422

<212> DNA

<213> homo sapiens

<400> 21

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gagaaggcaga gtcgggtgcc cattctccat ggtgcggcgg ccttggccga tgatctggcc 240
gaagagcttc agaacaagcc attaaacagt gagatcagag agtctttgaa actactgtca 300
aaacccaaatg tgaaggctt gctctctgta catgatactg tggctcagaa gaattacgac 360
ccagtgttgc ctcctatgcc tgaagatatt gacgtgagg aagactcagt aaaaataatc 420
cgtctggtca aaaatagaga accactggga gctaccattt agaaggatga acagaccggg 480
gcatcattt gggccagaat catgagagga ggagctgcag atagaagtgg tcttattcat 540
gttggtgatg aacttaggga agtcaacggg ataccagtgg aggataaaag gcctgaggaa 600
ataatacaga ttttggctca gtctcaggga gcaattacat ttaagattat accccggcagc 660
aaagaggaga caccatcaa agaaggcaag atgtttatca aagcccttt tgactataat 720
cctaatttgggataaaggcaat tccatgtaa gaagctggc ttttttcaa aaaggggagat 780
attcttcaga ttatgagcca agatgtatca acttgggtggc aagcgaaaca cgaagctgtat 840
gccaacccca gggcaggctt gatccccctca aagcatttcc agggaaaggag attggcttg 900

| | | | | | | |
|-------------|------------|------------|-------------|-------------|------------|------|
| agacgaccag | aaatatttgt | tcagccccgt | aaagtttcca | acaggaaatc | atctggttt | 960 |
| agaagaagtt | ttcgctctag | tagaaaagat | aagaaaacaa | ataaaatccat | gtatgaatgc | 1020 |
| aagaagagtg | atcagtaCGA | cacagCTGAC | gtacCCACAT | acgaAGAAgt | gacACCgtat | 1080 |
| cggcgacaaa | ctaataaaaa | atacagactc | gttgcTTGG | ttggTcccgt | gggagtaggg | 1140 |
| ctgaatgaac | tgaaacgaaa | gctgctgatc | agtgcACACCC | agcaCTATGG | cgtgacAGTG | 1200 |
| ccccatACCA | ccagAGCAAG | aagaAGCCAG | gagAGTGTATG | gtgttGAATA | cattttCATT | 1260 |
| tccaaggcatt | tgtttgagac | agatgtacaa | aataacaAGT | ttattGAATA | tggagaata | 1320 |
| aaaaacaact | actacGGCAC | aagtataGAC | tcagttcggt | ctgtcCTTGC | taaaaacaaa | 1380 |
| gtttgtttgt | tggatgttca | gcctcatgtA | agtaaaacaat | ga | | 1422 |

<210> 22
<211> 473
<212> PRT
<213> homo sapiens

| | | | | | | |
|---|-----|-----|-----|--|--|--|
| <400> 22 | | | | | | |
| Met Pro Ala Leu Ser Thr Gly Ser Gly Ser Asp Thr Gly Leu Tyr Glu | | | | | | |
| 1 | 5 | 10 | 15 | | | |
| Leu Leu Ala Ala Leu Pro Ala Gln Leu Gln Pro His Val Asp Ser Gln | | | | | | |
| 20 | 25 | 30 | | | | |
| Glu Asp Leu Thr Phe Leu Trp Asp Met Phe Gly Glu Lys Ser Leu His | | | | | | |
| 35 | 40 | 45 | | | | |
| Ser Leu Val Lys Ile His Glu Lys Leu His Tyr Tyr Glu Lys Gln Ser | | | | | | |
| 50 | 55 | 60 | | | | |
| Pro Val Pro Ile Leu His Gly Ala Ala Ala Leu Ala Asp Asp Leu Ala | | | | | | |
| 65 | 70 | 75 | 80 | | | |
| Glu Glu Leu Gln Asn Lys Pro Leu Asn Ser Glu Ile Arg Glu Leu Leu | | | | | | |
| 85 | 90 | 95 | | | | |
| Lys Leu Leu Ser Lys Pro Asn Val Lys Ala Leu Leu Ser Val His Asp | | | | | | |
| 100 | 105 | 110 | | | | |
| Thr Val Ala Gln Lys Asn Tyr Asp Pro Val Leu Pro Pro Met Pro Glu | | | | | | |
| 115 | 120 | 125 | | | | |
| Asp Ile Asp Asp Glu Glu Asp Ser Val Lys Ile Ile Arg Leu Val Lys | | | | | | |
| 130 | 135 | 140 | | | | |
| Asn Arg Glu Pro Leu Gly Ala Thr Ile Lys Lys Asp Glu Gln Thr Gly | | | | | | |
| 145 | 150 | 155 | 160 | | | |
| Ala Ile Ile Val Ala Arg Ile Met Arg Gly Gly Ala Ala Asp Arg Ser | | | | | | |
| 165 | 170 | 175 | | | | |
| Gly Leu Ile His Val Gly Asp Glu Leu Arg Glu Val Asn Gly Ile Pro | | | | | | |
| 180 | 185 | 190 | | | | |
| Val Glu Asp Lys Arg Pro Glu Glu Ile Ile Gln Ile Leu Ala Gln Ser | | | | | | |
| 195 | 200 | 205 | | | | |
| Gln Gly Ala Ile Thr Phe Lys Ile Ile Pro Gly Ser Lys Glu Glu Thr | | | | | | |
| 210 | 215 | 220 | | | | |
| Pro Ser Lys Glu Gly Lys Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn | | | | | | |
| 225 | 230 | 235 | 240 | | | |
| Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe | | | | | | |
| 245 | 250 | 255 | | | | |
| Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp | | | | | | |
| 260 | 265 | 270 | | | | |
| Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile | | | | | | |
| 275 | 280 | 285 | | | | |
| Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu | | | | | | |
| 290 | 295 | 300 | | | | |
| Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe | | | | | | |
| 305 | 310 | 315 | 320 | | | |
| Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser | | | | | | |
| 325 | 330 | 335 | | | | |
| Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro | | | | | | |
| 340 | 345 | 350 | | | | |
| Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr | | | | | | |
| 355 | 360 | 365 | | | | |
| Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu | | | | | | |

| | | |
|---|-----|---------|
| 370 | 375 | 380 |
| Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val | | |
| 385 | 390 | 395 400 |
| Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu | | |
| 405 | 410 | 415 |
| Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn | | |
| 420 | 425 | 430 |
| Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser | | |
| 435 | 440 | 445 |
| Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu | | |
| 450 | 455 | 460 |
| Asp Val Gln Pro His Val Ser Lys Gln | | |
| 465 | 470 | |

<210> 23

<211> 750

<212> DNA

<213> homo sapiens

<400> 23

| | |
|--|-----|
| atgaaaacttt tcttccagat gtttatcaaa gccctcttg actataatcc taatgaggat | 60 |
| aaggcaattc catgtaaagga agctgggctt tctttcaaaaa agggagatat tcttcagatt | 120 |
| atgagccaag atgatgcaac ttgttggcaa gcgaaacacg aagctgatgc caaccggcagg | 180 |
| gcagggcttga tccccctcaaa gcatttccag gaaaggagat tggcttttag acgaccagaa | 240 |
| atattggttc agccccctgaa agtttccaac agggaaatcat ctggtttttag aagaagtttt | 300 |
| cgtcttagta gaaaagataa gaaaacaaat aaatccatgt atgaatgcaa gaagagtgtat | 360 |
| cagtagcaca cagctgacgt acccacatac gaagaagtga caccgtatcg gcgacaaact | 420 |
| aatgaaaaat acagactcgt tgccttgggtt ggtcccgtgg gagtagggct gaatgaactg | 480 |
| aaacgaaaagc tgctgatcg tgacacccag cactatggcg tgacagtgcc ccataccacc | 540 |
| agagcaagaa gaagccagga gagtgatggtt gttgaataca ttttcatttc caagcatttg | 600 |
| tttgagacag atgtacaaaaa taacaagttt attgaatatg gagaatataa aaacaactac | 660 |
| tacggcacaa gtatagactc agttcgtct gtccttgcta aaaacaaagt ttgtttgttg | 720 |
| gatgttcagc ctcatgtaa taaacaatga | 750 |

<210> 24

<211> 249

<212> PRT

<213> homo sapiens

<400> 24

| | | |
|---|--|--|
| Met Lys Leu Phe Phe Gln Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn | | |
| 1 5 10 15 | | |
| Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe | | |
| 20 25 30 | | |
| Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp | | |
| 35 40 45 | | |
| Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile | | |
| 50 55 60 | | |
| Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu | | |
| 65 70 75 80 | | |
| Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe | | |
| 85 90 95 | | |
| Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser | | |
| 100 105 110 | | |
| Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro | | |
| 115 120 125 | | |
| Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr | | |
| 130 135 140 | | |
| Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu | | |
| 145 150 155 160 | | |
| Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val | | |
| 165 170 175 | | |
| Pro His Thr Thr Arg Ala Arg Ser Gln Glu Ser Asp Gly Val Glu | | |

| | | | |
|---|-----|-----|-----|
| | 180 | 185 | 190 |
| Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn | | | |
| 195 | 200 | 205 | |
| Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser | | | |
| 210 | 215 | 220 | |
| Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu | | | |
| 225 | 230 | 235 | 240 |
| Asp Val Gln Pro His Val Ser Lys Gln | | | |
| | 245 | | |

<210> 25
<211> 468
<212> DNA
<213> homo sapiens

| | | |
|---|--|-----|
| <400> 25 | | |
| atgtgctgcc caaagactgc ttgcagaggt cccgtggag tagggctgaa tgaactgaaa | | 60 |
| cggaaagctgc tgatcagtga caccacgac tatggcgtga cagtccccca taccaccaga | | 120 |
| gcaagaagaaa gcccaggagtg tgatgggttt gaatacattt tcatttccaa gcatttggtt | | 180 |
| gagacagatg tacaaaataa caagtttattt gaatatggag aatataaaaa caactactac | | 240 |
| ggcacaagta tagactcagt tcgtctgtc cttgctaaaaa acaaaagttt tttgttggat | | 300 |
| gttcagcctc atacagtgaa gcatttaagg acactagaat ttaagcccta tgttatattt | | 360 |
| ataaaggcctc catcaataga gcgttgaga gaaacaagaa aaaatgc当地 gattatttca | | 420 |
| agcagagatg accaagggtgc tgcaaaaaccc ttccacacaag gagaatag | | 468 |

<210> 26
<211> 155
<212> PRT
<213> homo sapiens

| | | | |
|---|-----|-----|----|
| <400> 26 | | | |
| Met Cys Cys Pro Lys Thr Ala Cys Arg Gly Pro Val Gly Val Gly Leu | | | |
| 1 | 5 | 10 | 15 |
| Asn Glu Leu Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly | | | |
| 20 | 25 | 30 | |
| Val Thr Val Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp | | | |
| 35 | 40 | 45 | |
| Gly Val Glu Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val | | | |
| 50 | 55 | 60 | |
| Gln Asn Asn Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr | | | |
| 65 | 70 | 75 | 80 |
| Gly Thr Ser Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val | | | |
| 85 | 90 | 95 | |
| Cys Leu Leu Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu | | | |
| 100 | 105 | 110 | |
| Glu Phe Lys Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg | | | |
| 115 | 120 | 125 | |
| Leu Arg Glu Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp | | | |
| 130 | 135 | 140 | |
| Gln Gly Ala Ala Lys Pro Phe Thr Gln Gly Glu | | | |
| 145 | 150 | 155 | |

<210> 27
<211> 555
<212> DNA
<213> homo sapiens

| | | |
|--|--|-----|
| <400> 27 | | |
| atgtatgaat gcaagaagag tgatcagtac gacacagctg acgtacccac atacgaagaa | | 60 |
| gtgacaccgt atcggcgaca aactaatgaa aaatacagac tcgttgtctt gggtggcc | | 120 |
| gtgggagtag ggctgaatga actgaaacga aagctgctga tcagtgcacac ccagcactat | | 180 |
| ggcgtgacag tgccccatac caccagagca agaagaagcc aggagagtga tgggttgaa | | 240 |
| tacatttca tttccaagca tttgttgag acagatgtac aaaataacaa gtttattgaa | | 300 |

| | | | | | | |
|------------|------------|------------|-------------|------------|------------|-----|
| tatggagaat | ataaaaacaa | ctactacggc | acaagtata | actcagttcg | gtctgtcc | 360 |
| gctaaaaaca | aagtttgtt | gttggatgtt | cagcctata | cagtgaagca | tttaaggaca | 420 |
| ctagaattt | agccctatgt | gatatttata | aaggcctccat | caatagagcg | tttgagagaa | 480 |
| acaagaaaaa | atgcaaagat | tatccaagc | agagatgacc | aagggtgc | aaaacccttc | 540 |
| acacaaggag | aatag | | | | | 555 |

<210> 28
<211> 184
<212> PRT
<213> homo sapiens

```

<400> 28
Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro
      1           5           10          15
Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr
      20          25          30
Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu
      35          40          45
Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val
      50          55          60
Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu
      65          70          75          80
Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn
      85          90          95
Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser
      100         105         110
Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu
      115         120         125
Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu Glu Phe Lys
      130         135         140
Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg Leu Arg Glu
      145         150         155          160
Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp Gln Gly Ala
      165          170          175
Ala Lys Pro Phe Thr Gln Gly Glu
      180

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```
<210> 29  
<211> 1563  
<212> DNA  
<213> homo sapiens
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<400> 29
atgccagctt tgtcaacggg atctgggagt gacactggtc tgtatgagct gttggctgct 6
ctgccagccc agctgcagcc acatgtggat acccaggaag acctgaccc tt cctctgggat 12
atgtttggtg aaaaaagcct gcattcattt gtaaaagattt atgaaaaactt acactactat 18
gagaaggcaga gtccgggtgcc cattctccat ggtgcggcg ccttggccga tgatctggcc 24
gaagagcttc agaacaagcc attaaacagt gagatcagag agctgttcaa actactgtca 30
aaacccaatg tgaaggcttt gctctctgtt catgatactg tggctcagaa gaattacgac 36
ccagtggtgc ctccatgcc tgaagatatt gacgatgagg aagactcagt aaaaataatc 42
cgtctggta aaaatagaga accactggga gctaccat tta agaaggatga acagaccggg 48
gcgatcattt gggccagaat catgagggaa ggagctgcag atagaagtgg tt tattcat 54
gttggtgatg aaccttagggaa agtcaacggg ataccagtgg aggataaaaag gcctggagaa 60
ataatacaga tttggctca gtctcaggaa gcaattat ttaagattat accccggcagc 66
aaagaggaga caccatcaaa agaaggcaag atgtttatca aagcccttct tgactataat 72
cttaatgagg ataaggcaat tccatgttcaag gaagctggc tt tttttcaaa aaaggagat 78
attcttcaga ttatgagcca agatgtatca acttgggtggc aagcgttcaaa cgaagctgtat 84
gccaacccca gggcaggctt gatccccctca aagcatttcc agggaaaggag attggcttt 90
agacgaccag aaatattggt tcagccccctg aaagtttcca acaggaaaatc atctgggttt 96
agaagaagtt ttctgtttag tagaaaaagat aagaaaaacaa ataaatccat gtatgaatgc 102
aagaagagtg atcagtacgaa cacagctgac gtacccacat acgaagaagt gacaccgtat 108
cggcgacaaa ctaatgaaaa atacagactc gtgttcttgg ttggcccgt gggagtaggg 114
ctgaatgaac tgaaacgaaa gctgctgatc atgacaccc acgactatgg cgtgacagtg 120

| | | | | | | |
|--------------|-------------|-------------|-------------|-------------|------------|------|
| cccccatacca | ccagagcaag | aagaaggccag | gagagtatgc | gtgttgaata | catttcatt | 1260 |
| tccaaaggcatt | tgtttgagac | agatgtacaa | aataacaagt | ttattgaata | tggagaatat | 1320 |
| aaaaacaact | actacggcac | aagtatagac | tcagttcggt | ctgtccttgc | taaaaacaaa | 1380 |
| gtttgttgtt | tggatgttca | gcctcataca | gtgaaggcatt | taaggacact | agaatttaag | 1440 |
| ccctatgtga | tatttataaa | gcctccatca | atagagcggtt | tgagagaaaac | aagaaaaaat | 1500 |
| gcaaaggatta | tttcaaggcag | agatgaccaa | ggtgctgcaa | aacccttcac | acaaggagaa | 1560 |
| tag | | | | | | 1563 |

<210> 30
<211> 520
<212> PRT
<213> homo sapiens

| | | | | | | |
|---|-----|-----|-----|--|--|--|
| <400> 30 | | | | | | |
| Met Pro Ala Leu Ser Thr Gly Ser Gly Ser Asp Thr Gly Leu Tyr Glu | | | | | | |
| 1 | 5 | 10 | 15 | | | |
| Leu Leu Ala Ala Leu Pro Ala Gln Leu Gln Pro His Val Asp Ser Gln | | | | | | |
| 20 | 25 | 30 | | | | |
| Glu Asp Leu Thr Phe Leu Trp Asp Met Phe Gly Glu Lys Ser Leu His | | | | | | |
| 35 | 40 | 45 | | | | |
| Ser Leu Val Lys Ile His Glu Lys Leu His Tyr Tyr Glu Lys Gln Ser | | | | | | |
| 50 | 55 | 60 | | | | |
| Pro Val Pro Ile Leu His Gly Ala Ala Ala Leu Ala Asp Asp Leu Ala | | | | | | |
| 65 | 70 | 75 | 80 | | | |
| Glu Glu Leu Gln Asn Lys Pro Leu Asn Ser Glu Ile Arg Glu Leu Leu | | | | | | |
| 85 | 90 | 95 | | | | |
| Lys Leu Leu Ser Lys Pro Asn Val Lys Ala Leu Leu Ser Val His Asp | | | | | | |
| 100 | 105 | 110 | | | | |
| Thr Val Ala Gln Lys Asn Tyr Asp Pro Val Leu Pro Pro Met Pro Glu | | | | | | |
| 115 | 120 | 125 | | | | |
| Asp Ile Asp Asp Glu Glu Asp Ser Val Lys Ile Ile Arg Leu Val Lys | | | | | | |
| 130 | 135 | 140 | | | | |
| Asn Arg Glu Pro Leu Gly Ala Thr Ile Lys Lys Asp Glu Gln Thr Gly | | | | | | |
| 145 | 150 | 155 | 160 | | | |
| Ala Ile Ile Val Ala Arg Ile Met Arg Gly Gly Ala Ala Asp Arg Ser | | | | | | |
| 165 | 170 | 175 | | | | |
| Gly Leu Ile His Val Gly Asp Glu Leu Arg Glu Val Asn Gly Ile Pro | | | | | | |
| 180 | 185 | 190 | | | | |
| Val Glu Asp Lys Arg Pro Glu Glu Ile Ile Gln Ile Leu Ala Gln Ser | | | | | | |
| 195 | 200 | 205 | | | | |
| Gln Gly Ala Ile Thr Phe Lys Ile Ile Pro Gly Ser Lys Glu Glu Thr | | | | | | |
| 210 | 215 | 220 | | | | |
| Pro Ser Lys Glu Gly Lys Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn | | | | | | |
| 225 | 230 | 235 | 240 | | | |
| Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe | | | | | | |
| 245 | 250 | 255 | | | | |
| Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp | | | | | | |
| 260 | 265 | 270 | | | | |
| Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile | | | | | | |
| 275 | 280 | 285 | | | | |
| Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu | | | | | | |
| 290 | 295 | 300 | | | | |
| Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe | | | | | | |
| 305 | 310 | 315 | 320 | | | |
| Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser | | | | | | |
| 325 | 330 | 335 | | | | |
| Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro | | | | | | |
| 340 | 345 | 350 | | | | |
| Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr | | | | | | |
| 355 | 360 | 365 | | | | |
| Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu | | | | | | |
| 370 | 375 | 380 | | | | |
| Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val | | | | | | |

| | | | |
|---|-----|-----|-----|
| 385 | 390 | 395 | 400 |
| Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu | | | |
| 405 | 410 | 415 | |
| Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn | | | |
| 420 | 425 | 430 | |
| Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser | | | |
| 435 | 440 | 445 | |
| Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu | | | |
| 450 | 455 | 460 | |
| Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu Glu Phe Lys | | | |
| 465 | 470 | 475 | 480 |
| Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg Leu Arg Glu | | | |
| 485 | 490 | 495 | |
| Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp Gln Gly Ala | | | |
| 500 | 505 | 510 | |
| Ala Lys Pro Phe Thr Gln Gly Glu | | | |
| 515 | 520 | | |

<210> 31
<211> 891
<212> DNA
<213> homo sapiens

<400> 31
atgaaaactt tcttccagat gtttatcaaa gccctctttg actataatcc taatgaggat 60
aaggcaattc catgtaaagga agctgggc ttctttcaaaaa aggagatatt tcttcagatt 120
atgagccaag atgatcaac ttgggtggcaa gcgaaacacg aagctgatgc caaccggcagg 180
gcaggcttga tccccctcaaa gcatttccag gaaaggagat tggcttttag acgaccagaa 240
atattggttc agcccccgtt agtttccaaac aggaatcat ctggtttttag aagaaggttt 300
cgtagtttagta gaaaagataa gaaaacaaat aaatccatgt atgaatgcaaa gaagagtgtat 360
cagtagaca cagctgacgt acccacatac gaagaagtga caccgtatcg gcgacaaact 420
aatgaaaaat acagactcgt tgttgggtt ggtcccgtagt gaggtaggctt gaatgaactg 480
aaacgaaagc tgctgatcg tgacaccccg cactatggcg tgacagtgcc ccataccacc 540
agagcaagaa gaagccagga gagtgatggt gttgaataca ttttcatttc caagcatttg 600
ttttagacatg atgtacaaaaa taacaagttt attgaatatg gagaatataa aaacaactac 660
tacggcacaa gtatagactc agttcggtct gtccttgcta aaaacaaagt ttgtttgttg 720
gatgttcagc ctcatacgtt gaagcattta aggacactag aatttaagcc ctatgtgata 780
tttataaagc ctccatcaat agagcgttt agagaaacaa gaaaaaatgc aaagattatt 840
tcaaggcagag atgacccaagg tgctgcaaaa cccttcacac aaggagaata g 891

<210> 32
<211> 296
<212> PRT
<213> homo sapiens

<400> 32
Met Lys Leu Phe Phe Gln Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn 1 5 10 15
Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe 20 25 30
Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp 35 40 45
Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile 50 55 60
Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu 65 70 75 80
Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe 85 90 95
Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser 100 105 110
Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro 115 120 125
Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr

| | | |
|---|---------------------|-----|
| 130 | 135 | 140 |
| Arg Leu Val Val Leu Val Gly Pro Val Gly Val | Gly Leu Asn Glu Leu | |
| 145 150 | 155 | 160 |
| Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val | | |
| 165 | 170 | 175 |
| Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu | | |
| 180 | 185 | 190 |
| Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn | | |
| 195 | 200 | 205 |
| Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser | | |
| 210 | 215 | 220 |
| Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu | | |
| 225 | 230 | 235 |
| Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu Glu Phe Lys | | |
| 245 | 250 | 255 |
| Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg Leu Arg Glu | | |
| 260 | 265 | 270 |
| Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp Gln Gly Ala | | |
| 275 | 280 | 285 |
| Ala Lys Pro Phe Thr Gln Gly Glu | | |
| 290 | 295 | |

<210> 33

<211> 585

<212> DNA

<213> homo sapiens

<400> 33

| | | | | | | |
|-------------|-------------|-------------|-------------|------------|------------|-----|
| atgtgctgcc | caaagactgc | ttgcagaggt | cccgtagggag | tagggctgaa | tgaactgaaa | 60 |
| cgtaaagctgc | tgatcagtga | caccagcac | tatggctgta | cagtgcggca | taccacca | 120 |
| gcagaaggaa | gccaggagag | tgatgggtt | gaatacattt | tcatttccaa | gcatttttt | 180 |
| gagacagatg | tacaataaa | caagtttatt | gaatatggag | aatataaaaa | caactactac | 240 |
| ggcacaagta | tagactca | tcgtctgtc | cttgctaaaa | acaaaagttt | tttggat | 300 |
| gttcagccctc | atacagtgaa | gcatttaagg | acactagaat | ttaagcccta | tgtgatattt | 360 |
| ataaaggcctc | catcaataga | gcgttgaga | gaaacaagaa | aaaatgcaaa | gattattca | 420 |
| agcagagatg | accaagggtgc | tgcaaaaccc | ttcacagaag | aagatttca | agaaatgatt | 480 |
| aaatctgcac | agataatgga | aagtcaatat | ggtcatctt | ttgacaaaat | tataataat | 540 |
| gatgacctca | ctgtggcatt | caaaaaaaaaa | aaaaaaaaaa | aaaaaa | | 585 |

<210> 34

<211> 195

<212> PRT

<213> homo sapiens

<400> 34

| | | | |
|---|-----|-----|----|
| Met Cys Cys Pro Lys Thr Ala Cys Arg Gly Pro Val Gly Val Gly Leu | | | |
| 1 | 5 | 10 | 15 |
| Asn Glu Leu Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly | | | |
| 20 | 25 | 30 | |
| Val Thr Val Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp | | | |
| 35 | 40 | 45 | |
| Gly Val Glu Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val | | | |
| 50 | 55 | 60 | |
| Gln Asn Asn Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr | | | |
| 65 | 70 | 75 | 80 |
| Gly Thr Ser Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val | | | |
| 85 | 90 | 95 | |
| Cys Leu Leu Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu | | | |
| 100 | 105 | 110 | |
| Glu Phe Lys Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg | | | |
| 115 | 120 | 125 | |
| Leu Arg Glu Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp | | | |
| 130 | 135 | 140 | |

Gln Gly Ala Ala Lys Pro Phe Thr Glu Glu Asp Phe Gln Glu Met Ile
 145 150 155 160
 Lys Ser Ala Gln Ile Met Glu Ser Gln Tyr Gly His Leu Phe Asp Lys
 165 170 175
 Ile Ile Ile Asn Asp Asp Leu Thr Val Ala Phe Lys Lys Lys Lys Lys
 180 185 190
 Lys Lys Lys
 195

<210> 35
 <211> 672
 <212> DNA
 <213> homo sapiens

<400> 35
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 gtgacaccgt atcggcgaca aactaatgaa aaatacagac tcgttgtctt gggtggccc 120
 gtgggagtag ggctgaatga actgaaacga aagctgctga tcagtgcac ccagcactat 180
 ggcgtgacag tgccccatac caccagagca agaagaagcc aggagagtga tggtgtgaa 240
 tacatttca ttccaagca ttgttttag acagatgtac aaaataacaa gtttatgaa 300
 tatggagaat ataaaaaaca ctactacggc acaagtatag actcagttcg gtctgtcctt 360
 gctaaaaaaca aagtttttt gttggatgtt cagcctcata cagtgaagca ttttaaggaca 420
 ctagaattta agccctatgt gatattata aagcctccat caatagagcg tttgagagaa 480
 acaagaaaaaa atgcaaagat tattcaagc agagatgacc aaggtgctgc aaaacccttc 540
 acagaagaag atttcaaga aatgattaaa tctgcacaga taatggaaag tcaatatggt 600
 catcttttg acaaaaattat aataaatgat gacctcactg tggcattcaa aaaaaaaaaa 660
 aaaaaaaaaa aa 672

<210> 36
 <211> 224
 <212> PRT
 <213> homo sapiens

<400> 36
 Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro
 1 5 10 15
 Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr
 20 25 30
 Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu
 35 40 45
 Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val
 50 55 60
 Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu
 65 70 75 80
 Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn
 85 90 95
 Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser
 100 105 110
 Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu
 115 120 125
 Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu Glu Phe Lys
 130 135 140
 Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg Leu Arg Glu
 145 150 155 160
 Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp Gln Gly Ala
 165 170 175
 Ala Lys Pro Phe Thr Glu Glu Asp Phe Gln Glu Met Ile Lys Ser Ala
 180 185 190
 Gln Ile Met Glu Ser Gln Tyr Gly His Leu Phe Asp Lys Ile Ile Ile
 195 200 205
 Asn Asp Asp Leu Thr Val Ala Phe Lys Lys Lys Lys Lys Lys Lys
 210 215 220

<210> 37
<211> 1680
<212> DNA
<213> homo sapiens

<400> 37

| | | | | | | |
|-------------|-------------|--------------|-------------|-------------|-------------|------|
| atgccagctt | tgtcaacggg | atctgggagt | gacactggc | tgtatgagct | gttggctgct | 60 |
| ctgccagccc | agctgcagcc | acatgtggat | agccaggaaag | acctgacctt | cctctgggat | 120 |
| atgtttggtg | aaaaaaagct | gcattcattt | gtaaaagattc | atgaaaaact | acactactat | 180 |
| gagaagcaga | gtccggtgcc | cattctccat | ggtgcggcgg | ccttggccga | tgatctggcc | 240 |
| gaagagcttc | agaacaagcc | attaaacagt | gagatcagag | agctgttcaa | actactgtca | 300 |
| aaacccaatg | tgaaggcttt | gctctctgtt | catgatactg | tggctcagaa | gaattacgac | 360 |
| ccagtgttc | ctcctatgcc | tgaagatatt | gacgatgagg | aagactcagt | aaaaataatc | 420 |
| cgtctggta | aaaatagaga | accactggga | gctaccatta | agaaggatga | acagaccggg | 480 |
| gcgatcattt | tggccagaat | catgagagga | ggagctgcag | atagaagtgg | tcttattcat | 540 |
| gttgggtatg | aacttaggaa | agtaaacggg | ataccagtgg | aggataaaag | gcctgaggaa | 600 |
| ataatacaga | ttttggctca | gtctcaggaa | gcaattacat | ttaagattat | acccggcagc | 660 |
| aaagaggaga | caccatcaaa | agaaggcaag | atgtttatca | aagccctctt | tgactataat | 720 |
| cctaattggg | ataaggcaat | tccatgttcaag | gaagctggc | tttctttcaa | aaagggagat | 780 |
| atttttcaga | ttatgagcca | agatgtatgc | acttggtggc | aagcgaaaca | cgaagctgat | 840 |
| gccaacccca | gggcaggcctt | gatccccctca | aagcatttcc | aggaaaggag | atggcttttgc | 900 |
| agacgaccag | aaatatttgtt | tcagccccctg | aaagtttcca | acaggaaatc | atctggtttt | 960 |
| agaagaagtt | ttcgtcttag | tagaaaaagat | aagaaaaaca | ataaatccat | gtatgaatgc | 1020 |
| aagaagagtg | atcgtacga | cacagctgac | gtacccacat | acgaaaaagt | gacaccgtat | 1080 |
| cggcgacaaa | ctaatgaaaa | atacagactc | gttgccttgg | ttggtcccgt | gggagtaggg | 1140 |
| ctgaatgaac | tgaaacgaaa | gctgctgatc | agtgcacaccc | agcactatgg | cgtgacagtgc | 1200 |
| ccccataccat | ccagagcaag | aagaagccag | gagagtgtat | gtgttgaata | cattttcatt | 1260 |
| tccaaggcatt | tgtttgagac | agatgtacaa | aataacaagt | ttattgaata | tggagaatat | 1320 |
| aaaaacaact | actacggcac | aagtatagac | tcagttcggt | ctgtccttgc | taaaaacaaa | 1380 |
| gtttgtttgt | tggatgttca | gcctcataca | gtgaagcatt | taaggacact | agaatttaag | 1440 |
| ccctatgtga | tatttataaa | gcctccatca | atagagcgat | ttagagaaaac | aagaaaaaaat | 1500 |
| gcaaagatta | tttcaaggcag | agatgaccaa | ggtgctgcaa | aacccttcac | agaagaagat | 1560 |
| tttcaagaaa | tgatttaatc | tgcacagata | atggaaagtc | aatatggtca | tcttttgac | 1620 |
| aaaattataa | taaatgttca | cctcactgtt | gcattcaaaa | aaaaaaaaaa | aaaaaaaaaa | 1680 |

<210> 38
<211> 560
<212> PRT
<213> homo sapiens

<400> 38

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Pro | Ala | Leu | Ser | Thr | Gly | Ser | Asp | Thr | Gly | Leu | Tyr | Glu | | |
| 1 | | 5 | | | 10 | | | | 15 | | | | | | |
| Leu | Leu | Ala | Ala | Leu | Pro | Ala | Gln | Leu | Gln | Pro | His | Val | Asp | Ser | Gln |
| | | | | | 20 | | | 25 | | | 30 | | | | |
| Glu | Asp | Leu | Thr | Phe | Leu | Trp | Asp | Met | Phe | Gly | Glu | Lys | Ser | Leu | His |
| | | | | | | | 35 | 40 | | | 45 | | | | |
| Ser | Leu | Val | Lys | Ile | His | Glu | Lys | Leu | His | Tyr | Tyr | Glu | Lys | Gln | Ser |
| | | | | | | | 50 | 55 | | 60 | | | | | |
| Pro | Val | Pro | Ile | Leu | His | Gly | Ala | Ala | Ala | Leu | Ala | Asp | Asp | Leu | Ala |
| | | | | | | | 65 | 70 | | 75 | | 80 | | | |
| Glu | Glu | Leu | Gln | Asn | Lys | Pro | Leu | Asn | Ser | Glu | Ile | Arg | Glu | Leu | Leu |
| | | | | | | | 85 | 90 | | 95 | | | | | |
| Lys | Leu | Leu | Ser | Lys | Pro | Asn | Val | Lys | Ala | Leu | Leu | Ser | Val | His | Asp |
| | | | | | | | 100 | 105 | | 110 | | | | | |
| Thr | Val | Ala | Gln | Lys | Asn | Tyr | Asp | Pro | Val | Leu | Pro | Pro | Met | Pro | Glu |
| | | | | | | | 115 | 120 | | 125 | | | | | |
| Asp | Ile | Asp | Asp | Glu | Glu | Asp | Ser | Val | Lys | Ile | Ile | Arg | Leu | Val | Lys |
| | | | | | | | 130 | 135 | | 140 | | | | | |
| Asn | Arg | Glu | Pro | Leu | Gly | Ala | Thr | Ile | Lys | Lys | Asp | Glu | Gln | Thr | Gly |
| | | | | | | | 145 | 150 | | 155 | | 160 | | | |
| Ala | Ile | Ile | Val | Ala | Arg | Ile | Met | Arg | Gly | Gly | Ala | Ala | Asp | Arg | Ser |
| | | | | | | | 165 | | 170 | | 175 | | | | |

Gly Leu Ile His Val Gly Asp Glu Leu Arg Glu Val Asn Gly Ile Pro
 180 185 190
 Val Glu Asp Lys Arg Pro Glu Glu Ile Ile Gln Ile Leu Ala Gln Ser
 195 200 205
 Gln Gly Ala Ile Thr Phe Lys Ile Ile Pro Gly Ser Lys Glu Glu Thr
 210 215 220
 Pro Ser Lys Glu Gly Lys Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn
 225 230 235 240
 Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe
 245 250 255
 Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp
 260 265 270
 Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile
 275 280 285
 Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu
 290 295 300
 Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe
 305 310 315 320
 Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser
 325 330 335
 Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro
 340 345 350
 Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr
 355 360 365
 Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu
 370 375 380
 Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val
 385 390 395 400
 Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu
 405 410 415
 Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn
 420 425 430
 Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser
 435 440 445
 Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu
 450 455 460
 Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu Glu Phe Lys
 465 470 475 480
 Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg Leu Arg Glu
 485 490 495
 Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp Gln Gly Ala
 500 505 510
 Ala Lys Pro Phe Thr Glu Glu Asp Phe Gln Glu Met Ile Lys Ser Ala
 515 520 525
 Gln Ile Met Glu Ser Gln Tyr Gly His Leu Phe Asp Lys Ile Ile Ile
 530 535 540
 Asn Asp Asp Leu Thr Val Ala Phe Lys Lys Lys Lys Lys Lys Lys
 545 550 555 560

<210> 39
 <211> 1008
 <212> DNA
 <213> homo sapiens

<400> 39
 atgaaacttt tcttccagat gtttatcaaa gccctctttg actataatcc taatgaggat 60
 aaggcaattc catgtaaaggaa agctgggctt tctttcaaaa aggagatat tcttcagatt 120
 atgagccaag atgatgcaac ttggtgccaa gcgaaacacg aagctgatgc caaccccagg 180
 gcaggcttga tcccctcaaa gcatttccag gaaaggagat tggcttttag acgaccagaa 240
 atattggttc agccccctgaa agtttccaaac agggaaatcat ctggtttttag aagaagtttt 300
 cgtcttagta gaaaagataa gaaaacaaat aaatccatgt atgaatgcaa gaagagtgtat 360
 cagtacgaca cagctgacgt acccacatac gaagaagtga caccgtatcg gcgacaaact 420
 aataaaaaat acagactcgt tgtcttggtt ggtcccggtt gagtagggct gaatgaactg 480

| | | | | | | |
|-------------|-------------|---------------|-------------|------------|-------------|------|
| aaacgaaaagc | tgtctgatcag | tgacaccccg | cactatggcg | tgacagtgcc | ccataccacc | 540 |
| agagcaagaa | gaagccaggaa | gagtgtatgg | gttgaataca | ttttcatttc | caagcatttg | 600 |
| tttgagacag | atgtacaaaa | taacaagttt | attgaatatg | gagaatataa | aaacaactac | 660 |
| tacggcacaa | gtatagactc | agttcggtct | gtccttgcta | aaaacaaagt | ttgtttgttg | 720 |
| gatgttcagc | ctcatacagt | gaagcattta | aggacactag | aatttaagcc | ctatgtgata | 780 |
| tttataaagc | ctccatcaat | agagcgttt | agagaaaacaa | aaaaaaatgc | aaagattatt | 840 |
| tcaaggcagag | atgaccaagg | tgctgcaaaa | cccttcacag | aagaagattt | tcaagaaaatg | 900 |
| attaaatctg | cacagataat | ggaaagtcaa | tatggtcatc | tttttgacaa | aattataata | 960 |
| aatgatgacc | tcactgtggc | attcaaaaaaaaa | aaaaaaaaaa | aaaaaaaaaa | | 1008 |

<210> 40
<211> 336
<212> PRT
<213> homo sapiens

<400> 40
 Met Lys Leu Phe Phe Gln Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn
 1 5 10 15
 Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe
 20 25 30
 Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp
 35 40 45
 Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile
 50 55 60
 Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu
 65 70 75 80
 Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe
 85 90 95
 Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser
 100 105 110
 Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro
 115 120 125
 Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr
 130 135 140
 Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu
 145 150 155 160
 Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val
 165 170 175
 Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu
 180 185 190
 Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn
 195 200 205
 Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser
 210 215 220
 Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu
 225 230 235 240
 Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu Glu Phe Lys
 245 250 255
 Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg Leu Arg Glu
 260 265 270
 Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp Gln Gly Ala
 275 280 285
 Ala Lys Pro Phe Thr Glu Glu Asp Phe Gln Glu Met Ile Lys Ser Ala
 290 295 300
 Gln Ile Met Glu Ser Gln Tyr Gly His Leu Phe Asp Lys Ile Ile Ile
 305 310 315 320
 Asn Asp Asp Leu Thr Val Ala Phe Lys Lys Lys Lys Lys Lys Lys

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<210> 41  
<211> 636  
<212> DNA  
<213> homo sapiens
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<400> 41

| | | | | | | |
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| atgtgctgcc | caaagactgc | ttgcagaggt | cccgtagggag | tagggctgaa | tgaactgaaa | 60 |
| cgaaggctgc | tgatcagtga | caccagcac | tatggcgta | cagtgcggca | taccaccaga | 120 |
| gcaagaagaa | gccaggagag | tgatgggttt | gaatacattt | tcatttccaa | gcattttttt | 180 |
| gagacagatg | tacaaaataa | caagtttatt | gaatatggag | aatataaaaa | caactactac | 240 |
| ggcacaagta | tagactcagt | tcgtctgtc | cttgctaaaa | acaaagttt | tttgttggat | 300 |
| gttcagcctc | atacagtgaa | gcatttaagg | acactagaat | ttaagcccta | tgtgatattt | 360 |
| ataaaagcctc | catcaataga | gcgttgaga | gaaacaagaa | aaaatgc当地 | gattattca | 420 |
| agcagagatg | accaagggtgc | tgcaaaaacc | ttcacagaag | aagatttca | agaaatgatt | 480 |
| aaatctgcac | agataatgga | aagtcaatat | ggtcatctt | ttgacaaaat | tataataat | 540 |
| gatgaccta | ctgtggcatt | caatgagctc | aaaacaactt | ttgacaaaatt | agagacagag | 600 |
| accatttggg | tgccagtgag | ctggttacat | tcataa | | | 636 |

<210> 42

<211> 211
<212> PRT
<213> homo sapiens

<400> 42

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Cys | Cys | Pro | Lys | Thr | Ala | Cys | Arg | Gly | Pro | Val | Gly | Val | Gly | Leu |
| 1 | | | | | | | | | | 5 | 10 | | 15 | | |
| Asn | Glu | Leu | Lys | Arg | Lys | Leu | Leu | Ile | Ser | Asp | Thr | Gln | His | Tyr | Gly |
| | | | | | | | | | | | 20 | | 25 | | 30 |
| Val | Thr | Val | Pro | His | Thr | Thr | Arg | Ala | Arg | Arg | Ser | Gln | Glu | Ser | Asp |
| | | | | | | | | | | | 35 | | 40 | | 45 |
| Gly | Val | Glu | Tyr | Ile | Phe | Ile | Ser | Lys | His | Leu | Phe | Glu | Thr | Asp | Val |
| | | | | | | | | | | | 50 | | 55 | | 60 |
| Gln | Asn | Asn | Lys | Phe | Ile | Glu | Tyr | Gly | Glu | Tyr | Lys | Asn | Asn | Tyr | Tyr |
| | | | | | | | | | | | 65 | | 70 | | 75 |
| Gly | Thr | Ser | Ile | Asp | Ser | Val | Arg | Ser | Val | Leu | Ala | Lys | Asn | Lys | Val |
| | | | | | | | | | | | 85 | | 90 | | 95 |
| Cys | Leu | Leu | Asp | Val | Gln | Pro | His | Thr | Val | Lys | His | Leu | Arg | Thr | Leu |
| | | | | | | | | | | | 100 | | 105 | | 110 |
| Glu | Phe | Lys | Pro | Tyr | Val | Ile | Phe | Ile | Lys | Pro | Pro | Ser | Ile | Glu | Arg |
| | | | | | | | | | | | 115 | | 120 | | 125 |
| Leu | Arg | Glu | Thr | Arg | Lys | Asn | Ala | Lys | Ile | Ile | Ser | Ser | Arg | Asp | Asp |
| | | | | | | | | | | | 130 | | 135 | | 140 |
| Gln | Gly | Ala | Ala | Lys | Pro | Phe | Thr | Glu | Glu | Asp | Phe | Gln | Glu | Met | Ile |
| | | | | | | | | | | | 145 | | 150 | | 155 |
| Lys | Ser | Ala | Gln | Ile | Met | Glu | Ser | Gln | Tyr | Gly | His | Leu | Phe | Asp | Lys |
| | | | | | | | | | | | 165 | | 170 | | 175 |
| Ile | Ile | Ile | Asn | Asp | Asp | Leu | Thr | Val | Ala | Phe | Asn | Glu | Leu | Lys | Thr |
| | | | | | | | | | | | 180 | | 185 | | 190 |
| Thr | Phe | Asp | Lys | Leu | Glu | Thr | Glu | Thr | His | Trp | Val | Pro | Val | Ser | Trp |
| | | | | | | | | | | | 195 | | 200 | | 205 |
| Leu | His | Ser | | | | | | | | | 210 | | | | |

<210> 43

<211> 723
<212> DNA
<213> homo sapiens

<400> 43

| | | | | | | |
|-------------|-------------|-------------|------------|-------------|------------|-----|
| atgtatgaat | gcaagaagag | tgatcagtagc | gacacagctg | acgtacccac | atacgaagaa | 60 |
| gtgacaccgt | atcggcgaca | aactaatgaa | aaatacagac | tcgttgcattt | ggttggcccc | 120 |
| gtgggagtag | ggctgaatga | actgaaacga | aagctgctga | tcagtgcacac | ccagcactat | 180 |
| ggcgtgacag | tgccccatata | caccagagca | agaagaagcc | aggagagtga | ttgtgttgaa | 240 |
| tacattttca | tttccaagca | tttgcgtttag | acagatgtac | aaaataacaa | gtttattgaa | 300 |
| tatggagaat | ataaaaaacaa | ctactacggc | acaagtatag | actcagttcg | gtctgtcctt | 360 |
| gctaaaaaca | aagtttggttt | gttggatgtt | cagcctcata | cagtgaagca | tttaaggaca | 420 |
| ctagaattta | agccctatgt | gatatttata | aagcctccat | caatagagcgc | tttgagagaa | 480 |
| acaagaaaaaa | atgcaaagat | tatttcaagc | agagatgacc | aagggtgctgc | aaaacccttc | 540 |

acagaagaag atttcaaga aatgattaaa tctgcacaga taatggaaag tcaatatgg
 catcttttg acaaattat aataaatgtat gacctcactg tggcattcaa tgagctcaa
 acaacttttg acaaattaga gacagagacc cattgggtgc cagttagctg gttacattca
 taa

<210> 44
 <211> 240
 <212> PRT
 <213> homo sapiens

<400> 44

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Tyr | Glu | Cys | Lys | Lys | Ser | Asp | Gln | Tyr | Asp | Thr | Ala | Asp | Val | Pro |
| 1 | | | | 5 | | | | 10 | | | | 15 | | | |
| Thr | Tyr | Glu | Glu | Val | Thr | Pro | Tyr | Arg | Arg | Gln | Thr | Asn | Glu | Lys | Tyr |
| | 20 | | | | | | 25 | | | | 30 | | | | |
| Arg | Leu | Val | Val | Leu | Val | Gly | Pro | Val | Gly | Val | Gly | Leu | Asn | Glu | Leu |
| | 35 | | | | | 40 | | | | 45 | | | | | |
| Lys | Arg | Lys | Leu | Leu | Ile | Ser | Asp | Thr | Gln | His | Tyr | Gly | Val | Thr | Val |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Pro | His | Thr | Thr | Arg | Ala | Arg | Arg | Ser | Gln | Glu | Ser | Asp | Gly | Val | Glu |
| | 65 | | | | | 70 | | | 75 | | | 80 | | | |
| Tyr | Ile | Phe | Ile | Ser | Lys | His | Leu | Phe | Glu | Thr | Asp | Val | Gln | Asn | Asn |
| | 85 | | | | | 90 | | | | 95 | | | | | |
| Lys | Phe | Ile | Glu | Tyr | Gly | Glu | Tyr | Lys | Asn | Asn | Tyr | Tyr | Gly | Thr | Ser |
| | 100 | | | | | 105 | | | 110 | | | | | | |
| Ile | Asp | Ser | Val | Arg | Ser | Val | Leu | Ala | Lys | Asn | Lys | Val | Cys | Leu | Leu |
| | 115 | | | | | 120 | | | 125 | | | | | | |
| Asp | Val | Gln | Pro | His | Thr | Val | Lys | His | Leu | Arg | Thr | Leu | Glu | Phe | Lys |
| | 130 | | | | | 135 | | | 140 | | | | | | |
| Pro | Tyr | Val | Ile | Phe | Ile | Lys | Pro | Pro | Ser | Ile | Glu | Arg | Leu | Arg | Glu |
| | 145 | | | | | 150 | | | 155 | | | 160 | | | |
| Thr | Arg | Lys | Asn | Ala | Lys | Ile | Ile | Ser | Ser | Arg | Asp | Asp | Gln | Gly | Ala |
| | 165 | | | | | 170 | | | 175 | | | | | | |
| Ala | Lys | Pro | Phe | Thr | Glu | Glu | Asp | Phe | Gln | Glu | Met | Ile | Lys | Ser | Ala |
| | 180 | | | | | 185 | | | 190 | | | | | | |
| Gln | Ile | Met | Glu | Ser | Gln | Tyr | Gly | His | Leu | Phe | Asp | Lys | Ile | Ile | Ile |
| | 195 | | | | | 200 | | | 205 | | | | | | |
| Asn | Asp | Asp | Leu | Thr | Val | Ala | Phe | Asn | Glu | Leu | Lys | Thr | Thr | Phe | Asp |
| | 210 | | | | | 215 | | | 220 | | | | | | |
| Lys | Leu | Glu | Thr | Glu | Thr | His | Trp | Val | Pro | Val | Ser | Trp | Leu | His | Ser |
| | 225 | | | | | 230 | | | 235 | | | 240 | | | |

<210> 45
 <211> 1731
 <212> DNA
 <213> homo sapiens

<400> 45

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| ctgcaggccc | agctgcagcc | acatgtggat | agccaggaag | acctgacctt | cctctggat | 120 |
| atgttggtg | aaaaaaaggct | gcatttcattg | gtaaagattc | atgaaaaact | acactactat | 180 |
| gagaaggcaga | gtcccggtcc | cattctccat | ggtgcggccgg | ccttggccga | tcatctggcc | 240 |
| gaagagcttc | agaacaagcc | attaaaacagt | gagatcagag | agctgttcaa | actactgtca | 300 |
| aaacccaatg | tgaaggctt | gctctctgt | catgatactg | tggctcagaa | gaattacgac | 360 |
| ccagtgttgc | ctccttatgcc | tgaaggatatt | gacgtatcagg | aagactcagt | aaaaataatc | 420 |
| cgtctggtca | aaaatagaga | accactggga | gctaccat | agaaggatga | acagaccggg | 480 |
| gcgtatcattt | tggccagaat | catgagagga | ggagctgcag | atagaaggatgg | tcttattcat | 540 |
| gttgggtatg | aacttaggaa | agtcaacggg | ataccatgg | aggataaaag | gcctgaggaa | 600 |
| ataatacaga | ttttggctca | gtctcaggga | gcaattacat | ttaagattat | acccggcagc | 660 |
| aaagaggaga | caccatcaaa | agaaggcaag | atgtttatca | aaggcccttt | tgactataat | 720 |
| cctaatttgggg | ataaggcaat | tccatgtaa | gaagctgggc | tttctttcaa | aaaggggagat | 780 |
| atttttcaga | ttatgagccaa | agatgtatc | acttgggtggc | aagcgaaaca | cgaagctgtat | 840 |
| gccaacccca | gggcaggctt | gatccccctca | aagcatttcc | agggaaaggag | attggctttg | 900 |

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|------------|------|
| agacgaccag | aaatatttgtt | tcagccccctg | aaagttcca | acaggaaatc | atctggttt | 960 |
| agaagaagtt | ttcgcttttag | tagaaaaagat | aagaaaacaa | ataaaatccat | gtatgaatgc | 1020 |
| aagaagagtg | atcagtagca | cacagctgac | gtacccacat | acgaagaagt | gacaccgtat | 1080 |
| cggcgacaaa | ctaataaaaa | atacagactc | gttgcgttgg | ttggcccgt | gggagtaggg | 1140 |
| ctgaatgaac | tgaaacgaaa | gctgcgtgatc | agtgcacaccc | agcactatgg | cgtgacagtg | 1200 |
| ccccatacca | ccagagcaag | aagaagccag | gagagtgtatg | gtgttgaata | cattttcatt | 1260 |
| tccaaagcatt | tgtttgagac | agatgtacaa | aataacaagt | ttattgaata | tggagaatat | 1320 |
| aaaaacaact | actacggcac | aagtatagac | tcagttcggt | ctgtccttgc | taaaaacaaa | 1380 |
| gtttgttgtt | tggatgttca | gcctcatata | gtgaagcatt | taaggacact | agaatttaag | 1440 |
| ccctatgtga | tatttataaa | gcctccatca | atagagcgtt | tgagagaaac | aagaaaaaat | 1500 |
| gcaaagatta | tttcaaggcag | agatgaccaa | ggtgctgcaa | aacccttcac | agaagaagat | 1560 |
| tttcaagaaa | tgattaaatc | tgcacagata | atggaaagtc | aatatggtca | tcttttgac | 1620 |
| aaaattataa | taaatgtga | cctcaactgtg | gcattcaatg | agctaaaaac | aacttttgac | 1680 |
| aaatttagaga | cagagaccca | ttgggtgccca | gtgagctggt | tacattcata | a | 1731 |

<210> 46
<211> 576
<212> PRT
<213> homo sapiens

| | | | | | | |
|---|-----|-----|-----|--|--|--|
| <400> 46 | | | | | | |
| Met Pro Ala Leu Ser Thr Gly Ser Gly Ser Asp Thr Gly Leu Tyr Glu | | | | | | |
| 1 | 5 | 10 | 15 | | | |
| Leu Leu Ala Ala Leu Pro Ala Gln Leu Gln Pro His Val Asp Ser Gln | | | | | | |
| 20 | 25 | 30 | | | | |
| Glu Asp Leu Thr Phe Leu Trp Asp Met Phe Gly Glu Lys Ser Leu His | | | | | | |
| 35 | 40 | 45 | | | | |
| Ser Leu Val Lys Ile His Glu Lys Leu His Tyr Tyr Glu Lys Gln Ser | | | | | | |
| 50 | 55 | 60 | | | | |
| Pro Val Pro Ile Leu His Gly Ala Ala Ala Leu Ala Asp Asp Leu Ala | | | | | | |
| 65 | 70 | 75 | 80 | | | |
| Glu Glu Leu Gln Asn Lys Pro Leu Asn Ser Glu Ile Arg Glu Leu Leu | | | | | | |
| 85 | 90 | 95 | | | | |
| Lys Leu Leu Ser Lys Pro Asn Val Lys Ala Leu Leu Ser Val His Asp | | | | | | |
| 100 | 105 | 110 | | | | |
| Thr Val Ala Gln Lys Asn Tyr Asp Pro Val Leu Pro Pro Met Pro Glu | | | | | | |
| 115 | 120 | 125 | | | | |
| Asp Ile Asp Asp Glu Glu Asp Ser Val Lys Ile Ile Arg Leu Val Lys | | | | | | |
| 130 | 135 | 140 | | | | |
| Asn Arg Glu Pro Leu Gly Ala Thr Ile Lys Lys Asp Glu Gln Thr Gly | | | | | | |
| 145 | 150 | 155 | 160 | | | |
| Ala Ile Ile Val Ala Arg Ile Met Arg Gly Gly Ala Ala Asp Arg Ser | | | | | | |
| 165 | 170 | 175 | | | | |
| Gly Leu Ile His Val Gly Asp Glu Leu Arg Glu Val Asn Gly Ile Pro | | | | | | |
| 180 | 185 | 190 | | | | |
| Val Glu Asp Lys Arg Pro Glu Glu Ile Ile Gln Ile Leu Ala Gln Ser | | | | | | |
| 195 | 200 | 205 | | | | |
| Gln Gly Ala Ile Thr Phe Lys Ile Ile Pro Gly Ser Lys Glu Glu Thr | | | | | | |
| 210 | 215 | 220 | | | | |
| Pro Ser Lys Glu Gly Lys Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn | | | | | | |
| 225 | 230 | 235 | 240 | | | |
| Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe | | | | | | |
| 245 | 250 | 255 | | | | |
| Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp | | | | | | |
| 260 | 265 | 270 | | | | |
| Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile | | | | | | |
| 275 | 280 | 285 | | | | |
| Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu | | | | | | |
| 290 | 295 | 300 | | | | |
| Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe | | | | | | |
| 305 | 310 | 315 | 320 | | | |
| Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser | | | | | | |
| 325 | 330 | 335 | | | | |

Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro
 340 345 350
 Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr
 355 360 365
 Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu
 370 375 380
 Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val
 385 390 395 400
 Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu
 405 410 415
 Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn
 420 425 430
 Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser
 435 440 445
 Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu
 450 455 460
 Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu Glu Phe Lys
 465 470 475 480
 Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg Leu Arg Glu
 485 490 495
 Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp Gln Gly Ala
 500 505 510
 Ala Lys Pro Phe Thr Glu Glu Asp Phe Gln Glu Met Ile Lys Ser Ala
 515 520 525
 Gln Ile Met Glu Ser Gln Tyr Gly His Leu Phe Asp Lys Ile Ile Ile
 530 535 540
 Asn Asp Asp Leu Thr Val Ala Phe Asn Glu Leu Lys Thr Thr Phe Asp
 545 550 555 560
 Lys Leu Glu Thr Glu Thr His Trp Val Pro Val Ser Trp Leu His Ser
 565 570 575

<210> 47
 <211> 1059
 <212> DNA
 <213> homo sapiens

<400> 47
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 aaggcaattc catgtaaagg agctgggctt tctttcaaaa agggagatatt tcttcagatt 120
 atgagccaaag atgatgcac ttggtgccaa gcgaaacacg aagctgatgc caacccccagg 180
 gcaggcttga tccccctcaaa gcatttccag gaaaggagat tggcttttag acgaccagaa 240
 atattggttc agccctgtcaa agtttccaaac aggaatcat ctggtttttag aagaagtttt 300
 cgtcttagta gaaaagataa gaaaacaat aaatccatgt atgaatgcaa gaagagtgtat 360
 cagtacgaca cagctgacgt acccacatac gaagaagtga caccgtatcg gcgacaaact 420
 aataaaaaat acagactcgt tgtcttggtt ggtcccgtag gagtagggct gaatgaactg 480
 aaacaaaaagc tgctgatcgt tgacaccccg cactatggcg tgacagtgcc ccataccacc 540
 agagaagaa gaagccagga gagtgatggt gttgaataca ttttcatttc caagcatttg 600
 tttgagacag atgtacaaaa taacaagttt attgaatatg gagaatataa aaacaactac 660
 tacggcacaa gtatagactc agttcggtct gtccttgcta aaaacaaatgt ttgttttttg 720
 gatgttcagc ctcatacgtt gaagcatttta aggacactag aatttaagcc ctatgtgata 780
 ttatataaagc ctccatcaat agagcgtttgg agagaaacaa gaaaaaatgc aaagattatt 840
 tcaaggcagag atgaccaagg tgctgcaaaa cccttcacag aagaagattt tcaagaaatg 900
 attaaatctg cacagataat gggaaagtcaa tatggtcatc ttttgacaa aattataata 960
 aatgatgacc tcactgtggc attcaatgag ctcaaaacaa cttttgacaa attagagaca 1020
 gagaccatt gggtgccagt gagctggta cattcataa 1059

<210> 48
 <211> 352
 <212> PRT
 <213> homo sapiens

<400> 48
 Met Lys Leu Phe Phe Gln Met Phe Ile Lys Ala Leu Phe Asp Tyr Asn

| | | | |
|---|-----|-----|-----|
| 1 | 5 | 10 | 15 |
| Pro Asn Glu Asp Lys Ala Ile Pro Cys Lys Glu Ala Gly Leu Ser Phe | | | |
| 20 | 25 | 30 | |
| Lys Lys Gly Asp Ile Leu Gln Ile Met Ser Gln Asp Asp Ala Thr Trp | | | |
| 35 | 40 | 45 | |
| Trp Gln Ala Lys His Glu Ala Asp Ala Asn Pro Arg Ala Gly Leu Ile | | | |
| 50 | 55 | 60 | |
| Pro Ser Lys His Phe Gln Glu Arg Arg Leu Ala Leu Arg Arg Pro Glu | | | |
| 65 | 70 | 75 | 80 |
| Ile Leu Val Gln Pro Leu Lys Val Ser Asn Arg Lys Ser Ser Gly Phe | | | |
| 85 | 90 | 95 | |
| Arg Arg Ser Phe Arg Leu Ser Arg Lys Asp Lys Lys Thr Asn Lys Ser | | | |
| 100 | 105 | 110 | |
| Met Tyr Glu Cys Lys Lys Ser Asp Gln Tyr Asp Thr Ala Asp Val Pro | | | |
| 115 | 120 | 125 | |
| Thr Tyr Glu Glu Val Thr Pro Tyr Arg Arg Gln Thr Asn Glu Lys Tyr | | | |
| 130 | 135 | 140 | |
| Arg Leu Val Val Leu Val Gly Pro Val Gly Val Gly Leu Asn Glu Leu | | | |
| 145 | 150 | 155 | 160 |
| Lys Arg Lys Leu Leu Ile Ser Asp Thr Gln His Tyr Gly Val Thr Val | | | |
| 165 | 170 | 175 | |
| Pro His Thr Thr Arg Ala Arg Arg Ser Gln Glu Ser Asp Gly Val Glu | | | |
| 180 | 185 | 190 | |
| Tyr Ile Phe Ile Ser Lys His Leu Phe Glu Thr Asp Val Gln Asn Asn | | | |
| 195 | 200 | 205 | |
| Lys Phe Ile Glu Tyr Gly Glu Tyr Lys Asn Asn Tyr Tyr Gly Thr Ser | | | |
| 210 | 215 | 220 | |
| Ile Asp Ser Val Arg Ser Val Leu Ala Lys Asn Lys Val Cys Leu Leu | | | |
| 225 | 230 | 235 | 240 |
| Asp Val Gln Pro His Thr Val Lys His Leu Arg Thr Leu Glu Phe Lys | | | |
| 245 | 250 | 255 | |
| Pro Tyr Val Ile Phe Ile Lys Pro Pro Ser Ile Glu Arg Leu Arg Glu | | | |
| 260 | 265 | 270 | |
| Thr Arg Lys Asn Ala Lys Ile Ile Ser Ser Arg Asp Asp Gln Gly Ala | | | |
| 275 | 280 | 285 | |
| Ala Lys Pro Phe Thr Glu Glu Asp Phe Gln Glu Met Ile Lys Ser Ala | | | |
| 290 | 295 | 300 | |
| Gln Ile Met Glu Ser Gln Tyr Gly His Leu Phe Asp Lys Ile Ile Ile | | | |
| 305 | 310 | 315 | 320 |
| Asn Asp Asp Leu Thr Val Ala Phe Asn Glu Leu Lys Thr Thr Phe Asp | | | |
| 325 | 330 | 335 | |
| Lys Leu Glu Thr Glu Thr His Trp Val Pro Val Ser Trp Leu His Ser | | | |
| 340 | 345 | 350 | |

<210> 49
<211> 1906
<212> DNA
<213> homo sapiens

<400> 49
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gacaacgtgg ctgcaggctg ttgaatttggaa attccctgtg gctgtccgaa ggcagggtgt 120
ccggagagcg gtgggctgac ctgttcctac accttgcatac atgccagctt tgtcaacggg 180
atctgggagt gacactgttc tttatgagct gttggctgtc ctggcagcccc agctgcagcc 240
acatgtggat agccaggaag acctgacctt cctctggat atgtttggtg aaaaaagcct 300
gcattcattt gtaaaagattt ataaaaaaactt acactactat gagaaggcaga gtccgggcc 360
cattctccat ggtgcggccgg ccttggccga tgatctggcc gaagagctt agaacaagcc 420
attaaacagt gagatcagag agctgttcaa actactgtca aaacccaatg tgaaggctt 480
gctctctgtt catgatactg tggctcgaaa gaattacgac ccagtgttgc ctcctatgcc 540
tgaagatatt gacgatgagg aagactcagt aaaaataatc cgctctggtca aaaatagaga 600
accacctggga gctaccattha agaaggatga acagaccggg gcatcatttggccagaat 660
catgagagga ggagctgcag atagaagtgg tcttattcat gtttgtatg aacttagggaa 720
agtcaacggg ataccagtgg aggataaaag gcctgaggaa ataatacaga ttttggctca 780

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|------------|------|
| gtctcaggga | gcaattacat | ttaagattat | accggcagc | aaagaggaga | caccatcaa | 840 |
| agaaggcaag | atgtttatca | aagcccttctt | tgactataat | cctaattgagg | ataaggcaat | 900 |
| tccatgttaag | gaagctggc | tttcttcaa | aaagggagat | attcttcaga | ttatgaggca | 960 |
| agatgatgca | acttggtggc | aagcgaaaaca | cgaagctgtat | gcacaaaa | gggcaggctt | 1020 |
| gatcccctca | aagcatttcc | aggaaaggag | attggcttgc | agacgaccag | aaatattgg | 1080 |
| tcagccccctg | aaagtttcca | acaggaaatc | atctggttt | agaagaagt | ttcgctttag | 1140 |
| tagaaaagat | aagaaaacaa | ataaatccat | gtatgaatgc | aagaagagt | atcagatcga | 1200 |
| cacagctgac | gtacccacat | acgaagaagt | gacaccgtat | cggcgacaaa | ctaatgaaaa | 1260 |
| atacagactc | gttgtcttgg | ttggtcccgt | gggagtaggg | ctgaatgaac | tgaaacgaaa | 1320 |
| gctgctgatc | agtgacacccc | agcaactatgg | cgtgacagt | ccccatacc | ccagagcaag | 1380 |
| aagaagccag | gagagtgtatg | gtgttgaata | catttcatt | tccaaggcatt | tgttttagac | 1440 |
| agatgtacaa | aataacaagt | ttattgaata | tggagaat | aaaaacaact | actacggcac | 1500 |
| aagtatagac | tcagttcggt | ctgtccttgc | taaaaaacaaa | gttgtttgt | tggatgttca | 1560 |
| gcctcataca | gtgaagcatt | taaggacact | agaatttaag | ccctatgtga | tatttataaa | 1620 |
| gcctccatca | atagagcgtt | tgagagaaac | aagaaaaat | gcaaagatta | tttcaagcag | 1680 |
| agatgacca | ggtgctgcaa | aacccttcac | agaagaagat | tttcaagaaa | tgattaaatc | 1740 |
| tgcacagata | atggaaagt | aatatggtca | tcttttgac | aaaattataa | taaatgtatg | 1800 |
| cctcaactgtg | gcattcaatg | agctcaaaaac | aacttttgac | aaatttagaga | cagagaccca | 1860 |
| ttgggtgcca | gtgagctggt | tacattcata | acttaaaaaa | aaaaaaa | | 1906 |

<210> 50

<211> 5426

<212> DNA

<213> homo sapiens

<400> 50

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| gaggcgttgc | ccccataact | cggaatctag | agccgctgtt | gcgaggcagg | agcacgtggc | 120 | |
| agtcaagtag | cttcccagtc | ccgaacgccc | cccgccccca | ccccgcgtg | gccactagca | 180 | |
| acgacacctg | tgaagtttgg | gaggcggtaa | cggaggcaact | ccccctgtg | caccccgccg | 240 | |
| tttctacggg | gctcagaaac | cagttgttt | gtttcgtcgg | ggtagtgtcg | acctgtctt | 300 | |
| cgggcgtcgc | ccgagacagg | acggagtc | acccgtggta | tcaactgaag | acgagtgtca | 360 | |
| ggatgtcatt | ttcaaaatgc | ggatgttac | ctctgc | ttaagccccg | taggaagact | 420 | |
| gccacaccta | gactgtatgt | tattagtcat | caccgttatt | cctacta | acg | 480 | |
| ctgagttttt | taaatgtctt | gcatatctgt | aaagatgcct | tagaaaaaga | atcatggaga | 540 | |
| agtatgttag | actacagaag | attggagaag | gttcatttgg | aaaagccatt | cttgttaat | 600 | |
| ctacagaaga | tggcagacag | tatgttatca | aggaaattaa | catctcaaga | atgtccagta | 660 | |
| aagaaaagaga | agaatcaagg | agagaagt | cagtattggc | aaacatggag | catccaaata | 720 | |
| ttgtccagta | tagagaatca | tttgaagaaa | atggcttct | ctacatagta | atggattact | 780 | |
| gtgagggagg | ggatctgtt | aaggcaataa | atgctcagaa | aggcgttgg | tttcaagagg | 840 | |
| atcagatttt | ggactgggtt | gtacagat | gtttggccct | gaaacatgt | catgatagaa | 900 | |
| aaattcttca | tcgagacatt | aaatctcaga | acatatttt | aactaaagat | ggaacagatc | 960 | |
| aacttggaga | ttttggatt | gctagagttc | ttaatagtac | tgttagagct | gctcgaactt | 1020 | |
| gcatagggac | cccataact | ttgtcacctg | aaatctgt | aaacaaacct | tacaataata | 1080 | |
| aaagtgacat | ttgggctctg | gggtgtgtcc | tttatgagct | gtgtacactt | aaacatgttt | 1140 | |
| ttgaagctgg | cagtatgaaa | aactctgtac | tgaagataat | atctggatct | tttccacctg | 1200 | |
| tgtctttgca | ttattcctt | gatctccgca | gtttgggtgc | tca | tttatttt | aaaagaaatc | 1260 |
| ctagggatag | accatca | aactccat | tggagaaagg | ttttatagcc | aaacgcattt | 1320 | |
| aaaagtttct | ctctcctc | cttattgcag | aagaatttt | tctaaaaaca | tttgcagat | 1380 | |
| ttggatcaca | gcctatacc | gctaaaagac | cagttcagg | acaaaactcg | atttctgtt | 1440 | |
| tgcctgctca | aaaaatttaca | aaggctgccc | ctaaatatgg | aataccttta | gcatataaaga | 1500 | |
| aatatggaga | taaaaaattt | cacaaaaaga | aaccactgca | aaaacataaa | caggccatc | 1560 | |
| aaactccaga | gaagagatgt | aatactggag | aagaaaggag | gaaaatatct | gaggaagcag | 1620 | |
| caagaaagag | aaggctgaa | tttattgaaa | aagaaaagaa | acaaaaggat | cagattatta | 1680 | |
| gtttaatgaa | ggctgaacaa | atggaaaggc | aagaaaagg | aagggtggaa | agaataaata | 1740 | |
| gggcaggaga | acaaggatgg | agaaatgtgc | taatgtgtgg | tggagttgt | gaagtaaagg | 1800 | |
| ctcccttct | gggcaggatgg | gggactatag | ctccatcatc | tttttcttct | cgaggacagt | 1860 | |
| atgaacattt | ccatgcattt | tttgcacaaa | tgcagcaaca | aagagcagaa | gataatgaag | 1920 | |
| ctaaatggaa | aagagaaata | tatgttgcag | gtcttccaga | aaggcaaaa | gggcagctag | 1980 | |
| ctgttagaaag | agctaaacaa | gtagaagagt | tcctgcagcg | aaaacggaa | gctatgcaga | 2040 | |
| ataaaagctcg | agccgaagga | catatggttt | atctggcaag | actgaggcaa | ataagactac | 2100 | |
| agaatttcaa | tgagcgc | cagattaaag | ccaaacttcg | tggtaaaaag | aaagaagcta | 2160 | |
| atcattctga | aggacaagaa | ggaagtgaag | aggctgacat | gaggcgcaaa | aaaatcgat | 2220 | |

| | | | | | | |
|-------------|------------|-------------|---------------|------------|------------|------|
| cactgaaggc | ccatgcaa | at gcacgtgc | tg ctgtactaaa | agaacaacta | gaacgaaaga | 2280 |
| gaaaggaggc | ttatgagaga | aaaaaaaag | tgtggaga | gcatttgg | gctaaaggag | 2340 |
| ttaagagt | tc tgatgtt | ccacc | tttgg | gacagcat | gc tccat | 2400 |
| agcaacagat | gagatctgtt | at ttctgt | aa cttc | cttcag | ttt gaaaga | 2460 |
| gtagtttaac | tgatacc | ccgg | gaaacttc | ag aagat | gc aagat | 2520 |
| caagtaagcg | agaaataact | ctc | cgat | aa agat | ca aac | 2580 |
| aaggaaatgc | gaatctct | ct | gat | at gaaat | ct taaag | 2640 |
| atgaaaaaaga | aaatcagtt | tc at | ctgat | gca | aa gaaatgt | 2700 |
| tgattcct | ggatgagtt | ac | actagata | cat | cc tctc | 2760 |
| tgggagaagt | tattaaatta | ggt | ccta | at g | gatcca | 2820 |
| cgacagat | tg tctaa | ag | at ac | tttgg | gag aac | 2880 |
| tagaaaatac | aactatt | ag | tgat | gat | tttgg | 2940 |
| ttactggaga | aaaaaaagta | ca | atgtat | ttt | catgaa | 3000 |
| attctcctgt | tgagacaaa | ag | tccc | gg | aggcagg | 3060 |
| aactggaagg | aaatttagaa | ga | ac | ctt | gat | 3120 |
| gtggacaaa | caaagatgag | ag | cttgc | ccat | gca | 3180 |
| aaaaagaaac | aaaggaaact | ca | gtcgg | ccag | at | 3240 |
| ctgaagat | gt | ctcg | gat | act | gtgg | 3300 |
| ccaatgat | tc | agact | ct | aa | atgt | 3360 |
| tccataagg | gtt | catt | ct | at | gtgt | 3420 |
| gttcacc | aga | atc | ttt | ttt | cat | 3480 |
| acaagaat | ctt | gt | ggact | ttt | ttt | 3540 |
| tgttaagg | atgtt | cact | ttt | ttt | ttt | 3600 |
| ccacc | ttt | ttt | ttt | ttt | ttt | 3660 |
| ttt | ttt | ttt | ttt | ttt | ttt | 3720 |
| ttt | ttt | ttt | ttt | ttt | ttt | 3780 |
| ttt | ttt | ttt | ttt | ttt | ttt | 3840 |
| ttt | ttt | ttt | ttt | ttt | ttt | 3900 |
| ttt | ttt | ttt | ttt | ttt | ttt | 3960 |
| ttt | ttt | ttt | ttt | ttt | ttt | 4020 |
| ttt | ttt | ttt | ttt | ttt | ttt | 4080 |
| ttt | ttt | ttt | ttt | ttt | ttt | 4140 |
| ttt | ttt | ttt | ttt | ttt | ttt | 4200 |
| ttt | ttt | ttt | ttt | ttt | ttt | 4260 |
| ttt | ttt | ttt | ttt | ttt | ttt | 4320 |
| ttt | ttt | ttt | ttt | ttt | ttt | 4380 |
| ttt | ttt | ttt | ttt | ttt | ttt | 4440 |
| ttt | ttt | ttt | ttt | ttt | ttt | 4500 |
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| ttt | ttt | ttt | ttt | ttt | ttt | 4620 |
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| ttt | ttt | ttt | ttt | ttt | ttt | 4740 |
| ttt | ttt | ttt | ttt | ttt | ttt | 4800 |
| ttt | ttt | ttt | ttt | ttt | ttt | 4860 |
| ttt | ttt | ttt | ttt | ttt | ttt | 4920 |
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| ttt | ttt | ttt | ttt | ttt | ttt | 5040 |
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| ttt | ttt | ttt | ttt | ttt | ttt | 5220 |
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| ttt | ttt | ttt | ttt | ttt | ttt | 5340 |
| ttt | ttt | ttt | ttt | ttt | ttt | 5400 |
| ttt | ttt | ttt | ttt | ttt | ttt | 5426 |